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Labour Party Transport Policy

THE Labour Party conference in Scarborough last week showed that the party has learnt nothing and forgotten nothing as regards transport. There was the old threat, reiterated on behalf of the party executive by Mr. Herbert Morrison, to re-nationalise road haulage in the event of his party's return to power; the lesson has not been learnt of the folly of tampering with transport after each change of Government. A resolution advocating either a "block grant" scheme to assist the British Transport Commission, or the taking over by the State of the capital charges of the Commission, with the latter paying interest on the basis of what it could reasonably be expected to earn, expresses a point of view familiar in these circles. What is remarkable is that nobody questioned the duty of the Government to honour its obligation to pay 3 per cent interest on British Transport stock. Reasons in favour of a subsidy for the railways whilst they were being modernised and put on a paying basis were stated by Mr. Ernest Davies, M.P., to be the absence of any Socialist principle against such a course, and the previous granting of subsidies by the Labour Government to the air undertakings. The discussion of these matters lacked vigour, and it was perhaps inevitable that the resolution referred to should have been remitted for examination by the party executive. In present circumstances such discussion

by the Labour Party is bound to lack reality. The railways will remain nationalised, and there is no indication yet of the exact form of organisation with which British Railways and the other nationalised transport undertakings will be left by the present Government; Mr. Morrison admitted as much. Although brief reference was made by Mr. Davies to the failure of the last Labour Government to carry out its plans to nationalise road passenger transport, this was not discussed at length at Scarborough. No doubt the threat remains, as does that of re-nationalising road haulage, as a further potential disturbance of the transport system of this country—which needs so much to be left alone by politicians, to function by its own efforts.

Pensions for Railway Wages Grades

THREE months ago, on July 7, the then Minister of Transport & Civil Aviation, Mr. Alan Lennox-Boyd, told the House of Commons that he had made regulations establishing as from October 1 the contributory pensions scheme covering male employees in the wages grades of British Railways, London Transport, Docks & Inland Waterways and Hotels & Catering Services. The scheme was described in our issue of July 16. Although much had been done in anticipation of the Minister's statement, it was not possible until after he had spoken, because amendments might be made by Parliament, to set the machinery in motion, including printing forms and explanatory literature. What this meant with a scheme embracing several hundred thousand men can be gathered from "The Man on the Line," who comments in the current issue of the *British Railways Magazine* on the speed with which the preparatory work was done. The scheme is administered by the Central Committee whose names were given in our August 27 issue. Day-to-day work is done in the Regions, in each of which a Pensions Officer has been appointed. It remains to be seen how many railwaymen will avail themselves of an opportunity of adding a greater measure of security in old age to the security of employment that railway work offers.

Increased Foreign Travel Allowances

ONE effect of the increase of the basic travel allowance from £50 to £100 for the year beginning November 1 may well be an increasing number of shorter trips to the Continent, where many people may decide to spend a week-end or other short holiday in addition to the longer period of their annual holiday. Whether the effect on the total numbers travelling to Europe will be great, is doubtful. A record number, over 1,000,000, went abroad this year, and managed to do so within the £50 allowance. On the other hand, there may be an increase in winter sports traffic and in travel to resorts on the Riviera, in Italy, and in other regions to which the fare is considerable and the journey may seem, perhaps, justified only by a longer stay. By and large, British Railways and the associated Continental railway and shipping undertakings stand to benefit appreciably through the increase in the allowance, more particularly in the higher classes of rail and steamer travel.

Locomotives for Rhodesia

THE first Beyer-Garratt locomotives of a new design for the Rhodesia Railways were shown to guests of the company at Gorton works on Thursday of last week. They are designated class "20," are of the 4-8-2 + 2-8-4 wheel arrangement and are built to a 17-ton axle load for 80-lb. rail although they have an overall length of 95 ft. and a total weight of 225 tons, of which 136 tons is adhesive. Tractive effort is 69,330 lb. At a luncheon at the Midland Hotel, Manchester, before viewing the locomotives, warm tribute was paid to Sir Arthur Griffin, until recently Chairman and formerly General Manager of the Rhodesia Railways, for his achievements in that country while he, in turn, spoke of the great assistance to the railways which had been rendered by Garratt locomotives of which no fewer than 204 in all had been purchased by the Rhodesia Railways. The other principal speakers were Mr. H. Wilmot, Chairman & Managing

Director of Beyer Peacock & Co. Ltd., and Sir Gilbert Rennie, High Commissioner for the Federation of Rhodesia & Nyasaland. It was made abundantly clear that recent press reports of delays in the completion of locomotive orders by British manufacturers for Rhodesia had been exaggerated.

"Billy" Clayton

ONE by one the giants of the British locomotive industry who guided it through the inter-war period and had their training and first responsibilities in the halcyon days of 1900-14 have passed from us. But at least one still remains, and remains going strong. Last month Mr. W. W. Clayton, Managing Director of Hudswell, Clarke & Co. Ltd., celebrated 50 years of continuous service with the company, and without any apparent diminution of his genial and forceful character and day-by-day control of the works. His family were interested in the company before "Billy" saw the light, but he was the first member to have technical and administrative qualifications as well as financial holding, and his personal interest is deep-rooted enough for him to have at his finger-ends the whole history of the firm since the time the founders took over ground, two cottages and some waste products from the executors of E. B. Wilson's Railway Foundry. He was one of the first men in the British locomotive industry to widen his products by non-locomotive articles; he is probably the last who knows all his workmen by name and in person.

Developing the Konkan

IN Western India a scheme is being examined of development by railway building of the Konkan, the tract between the Western Ghats and the coast south of Bombay. Except for the metre-gauge West of India Portuguese Railway running inland from Mormugao Harbour, the West Coast is devoid of railways between Bombay and Malabar, which latter coastal region is partially served by the Southern Railway (former S.I.R.), whilst new lines in that district are under construction or projected. The first step in developing the Konkan is the survey, now in hand, for both broad and metre gauge—whichever proves preferable after examination—of a 93-mile line from Diva, on the Central (former G.I.P.) Railway main line near Kalyan, southwards to Dasgaon. The survey will facilitate assessment of the possibility of extending the line—on broad gauge presumably—to join the Southern Railway broad-gauge line at Mangalore. The country served is mainly agricultural. Factors in favour of railway construction are inadequate road and river communications, whilst coastal shipping is restricted by the monsoon.

Fares by Instalments

THE announcement that a British air transport undertaking is to introduce a system of fare payments by instalments suggests the possibilities of a similar scheme for railway tickets. It might well be an added inducement to families to travel by rail to holiday resorts—probably their only important railway journey during the year. The airline scheme permits passengers to pay a deposit, make the journey, and complete payments by instalments, or to pay the whole fare by instalments beforehand. The latter would probably be better for railway fares. Hire-purchase, and the subscription schemes introduced by many shops, have made payment by instalments part of the national life, and the clerical costs involved need not be prohibitive. The British Transport Commission could draw interest on the money paid in before the tickets were actually purchased, and, in practice, the popularity of the scheme would probably be greatest in certain areas. There are already credit-purchase facilities for railway tickets in the U.S.A., although, as far as is known, these do not extend to instalment plans. The growth of competition suggests that any scheme to popularise railway travel in this country would be worth a trial.

New Missouri River Bridge

THE construction of yet another new dam and reservoir in the U.S.A. is necessitating a costly railway diversion. The Fort Randall Dam on the Missouri River has entailed the abandonment of the Chicago, Milwaukee, St. Paul & Pacific Railroad bridge over that river, and the construction of a new one $1\frac{1}{4}$ miles farther downstream. The new structure is being built by the U.S. Army, Corps of Engineers, the steelwork being fabricated and erected by the American Bridge Company. It is 4,890 ft. in length and consists of two 370-ft. through truss spans with a 42-ft. headway over the main channel, three 240-ft. deck truss spans, and 25 120-ft. and four 100-ft. deck plate-girder spans. The weight of steel involved in the superstructure is about 6,200 tons and the bridge carries a single track. It is situated near Chamberlain, South Dakota, on the Mitchell-Rapid City section of the C.M. & St.P. & P. Chicago-Rapid City route. The work has been under the general direction of Mr. W. G. Powrie, Chief Engineer of the railroad.

Density of Traffic

THE annual *Bulletin of Operating Statistics* published by the Association of American Railroads shows the density of freight traffic (measured by net ton-miles per mile of road per day) on the 220,000 miles of road in the U.S.A. as fully twice the density on the 19,270 miles of British Railways. Of the U.S.A. mileage 60,000 miles are in the Eastern District and the density there is more than three times that in Great Britain. Within that District the Pennsylvania works, on 10,000 miles of line, probably the largest traffic of general goods per mile of any railway in the world—four times as dense as is handled by British Railways. Even in the Far West the density on the 9,800 miles of the Union Pacific is 180 per cent above the level of British Railways. Seven U.S.A. railways work more ton-miles in a year than British Railways. These are, in order of ton-mileage:—

	Ton miles in 1953 (millions)	Miles of road
Pennsylvania	51,810	10,000
New York Central	39,409	10,600
Union Pacific	37,156	9,820
Santa Fe	34,037	13,095
Southern Pacific	32,093	8,060
Chesapeake & Ohio	31,046	5,030
Baltimore & Ohio	28,743	6,080

* The C. & O. is mainly a coal road

In short tons British Railways worked about 25,410 million ton-miles

Repeating of Slotted Signals

THE repeating of slotted signals is not as simple as that of others, and at one time did not receive the attention it deserves. Some railways merely repeated the position of the arm; but this could prove deceptive, for if it had been replaced to normal by the slotting control from the box in rear, the signalman could imagine everything to be in order while all the time his own control might have become jammed, or otherwise ineffective; the result would be that when the signalman in rear again cleared his, the arm would respond irregularly to that action alone. Accidents from this cause did in fact occur and gave rise to the practice of repeating the balance levers—or weight bars, as some railways termed them—so that a signalman could be in no doubt about the working of the vital part of the equipment actuated by himself. Very often now the "off" repeater indication comes from the arm, but the "on" from the arm and weight bar combined and of course any "proving" detects both these items.

British Railways Locomotive Tests

MUCH attention has been given by British Railways to the economical working of locomotives. With this object in mind tests have been conducted at the Swindon and Rugby stationary plants, as well as controlled road tests, with both standard and non-standard locomotives. The latest locomotive to be so tested is the East-

ern and North Eastern Region three-cylinder "V 2" class mixed-traffic locomotive, the results of which are given in *Bulletin No. 8*, published by the British Transport Commission. The presentation of the data is divided into two main parts; the first defines the relationship between coal as fired, water drawn from the tender, traction effort and h.p., as available at the drawbar. The second part is concerned mainly with thermal efficiency, and provides data on the basis of indicated power covering boiler and cylinder efficiencies, factors of importance in locomotive design. The test results are of considerable importance to the Operating Department, as they include data directly applicable to the immediate commercial purpose of examining train loading, and schedules, to obtain a reduction in fuel consumption by working locomotives, where possible, nearest to their point of maximum operating efficiency, and this aspect is clearly defined.

Extending the Pacific Great Eastern Railway

THE Pacific Great Eastern Railway of British Columbia is at last to realise one of its promoters' objectives, by reaching Vancouver, and is also to be extended northwards into the rich Peace River country, a development which did not form part of their plans. The southern terminus of this provincially-owned system has remained at Squamish, on Howe Sound, some 40 miles north of Vancouver, since it was opened in 1921; the bankruptcy of the company which then owned the railway halted further progress and was followed by the transfer of the line to public ownership. Contracts for half the extension from Squamish to North Vancouver have been let and the first sod was turned on August 28. Tenders for all but one of the remaining sections have been called for, and when they have been accepted, only the section through North Vancouver itself will still be open for contract. On this final section, 1,400 ft. long, the line will be on a 30 ft. high steel or pre-stressed concrete structure. The route of the extension follows the shore of Howe Sound, from Horse-shoe Bay to North Vancouver, using part of the original abandoned formation.

Speaking in London last month as Vice-President of the Pacific Great Eastern Railway, Mr. E. M. Gunderson, who is also Special Trade Representative in Great Britain for British Columbia, referred to the development of the railway in relation to trade with Britain. The Squamish-Vancouver extension and that projected into the Peace River district called for the purchase of considerable quantities of equipment, said Mr. Gunderson, and an order for 7,500 tons of rails and 300 tons of angle irons, amounting to \$1,000,000, had been placed with the United Steel Companies, which had previously supplied large quantities of permanent way material to the Pacific Great Eastern. A year ago 'the reconstruction of the roadbed of the whole line, 347 miles long, was begun, with 85-lb. rail being laid in replacement of the old 65-lb. rails at the rate of 50 miles a year. Subject to price, delivery, and other matters being satisfactory, continued Mr. Gunderson, he might consider placing immediately another order for the same amount. It was certain that in view of the northern and southern extensions they would be in the market annually for some 10,000 tons of steel and other equipment during the next four or five years, and British Columbia aimed to buy where it sold. Since he made that statement, Mr. Gunderson has announced the placing of a second order for rails and equipment for some 40 miles of line with the same group, bringing the value of the orders which have been concluded by the British Columbia Government with Britain in the past few weeks to approximately \$2,000,000. Details of this latest order appear in our Contracts & Tenders columns.

The Premier of British Columbia has put the cost of the Squamish-Vancouver extension as \$12,000,000, and that of carrying the line northwards to the Peace River at another \$48,000,000; the purchase of \$10,000,000 worth of additional rolling stock would bring the cost of the

two extensions to some \$70,000,000. In the description of the railway in our March 24, 1950, issue we expressed the hope that the Peace River extension would make it for the first time a profitable undertaking. This hope now seems to be a confident one. The Attorney-General of British Columbia has said that extension of the line as far as Dawson Creek in the Peace River area is essential to the future of the province, whose north-eastern territories are easily among the richest areas in North America, with reserves of coal estimated at 1,300,000,000 tons, the largest reserves of softwood in the world, and great wheat producing potentialities. It will be the task of the extended Pacific Great Eastern to make possible the development of these resources.

Until November, 1952, the railway was isolated, but in that month the 80-mile link between Quesnel, the existing northern terminus, and Prince George on the Prince Rupert line of the Canadian National Railways was opened, thus fulfilling another objective of the promoters. It was inferred at the time from remarks made by the Premier at the opening ceremony that the Quesnel-Prince George extension was merely the springboard for the much longer extension of the railway in a northerly direction for some 270 miles to Dawson Creek, which is now to be undertaken.

The Technique of Decision

THE fact that there was no chance before the Parliamentary recess for any discussion in the House of the White Paper, the contents of which became public property in July, should not be without its advantages. Any continuation of a period of uncertainty is clearly disadvantageous, and the British transport situation has suffered unduly in this respect during the last six years, but the enforced delay has permitted those whose duty it will be to act as judges and designers of future policy, at least an opportunity to study conscientiously the proposals put forward.

This was highly to be desired, and it is to be hoped that those concerned have taken due profit from this enforced delay; it is to be hoped, moreover, that the determination of future policy will be framed with due regard for the national interests, allied as they are with those of the transport industry itself, and will not be guided in any important respect by political considerations.

Perhaps it was natural that most of the controversy around the proposals embodied in the White Paper should have been concerned with the merit or otherwise of appointing Regional boards, which some consider would strengthen the Chief Regional Managers, whereas others judge them as interposing an unnecessary third tier in the hierarchy of authority.

An allied problem, in the eyes of some, is of even greater import, namely the fundamental question of design of policies either by committees or by a single executive, using this latter term in its normally accepted business sense. British tradition, especially in Government departments, has long enshrined the practice of determining policy by the recommendations of committees. In a mild form the London Midland & Scottish Railway executive organisation was based on this conception, but the other three main-line companies adhered to the General Manager concept with, of course, degrees of variation in each case. It may be argued that various committees of individual railways' boards provided the British traditional idea of committee control, yet it certainly did not reach the degree of authority to which it has attained in the years since 1948.

At some point a stage must be reached when the recommendations of several committees, vying perhaps with each other for available capital expenditure, have to be coordinated and there are advantages in leaving that difficult task to an individual rather than to a body, especially if members of the latter have functional duties.

Analogy with an army organisation, rather natural in existing conditions, is not always helpful or profitable, for

the army is not concerned with commercial incentive nor is it expected to be financially self-supporting; yet the need for quick action is comparable in both cases, and this demands the development of a technique of rapid decision.

There is a widespread feeling that some railway systems abroad have developed that technique further in the post-war period than can be recorded of the British Transport Commission. The notable achievements of the French National Railways in regard to reconstruction, to the Paris-Lyons electrification, the approaching completion of the 50-cycle installation between Valenciennes and Thionville, are a tribute to the forthright decisions of Monsieur Armand. In the Netherlands, the wholesale conversion to electric and diesel traction will always be a memorial to Mr. den Hollander.

Other instances could certainly be quoted and, before the design of future British transport policy is irrevocably settled, it might well be that attention should be given to the possibility of approximating more closely those forms of organisation which permit greater authority to be accorded to individuals of long experience in terms of taking policy decisions.

Smoke Abatement

METHODS envisaged by the British Transport Commission of dealing with the problem of air pollution by steam locomotives of British Railways were mentioned by Mr. R. F. Harvey, Chief Officer, Motive Power, British Railways, in a paper delivered to the annual conference of the National Smoke Abatement Society at Scarborough on September 23. The Commission, he says, is considering further schemes for electrification, and is in favour of developing diesel railcar services where this form of traction is suitable. Schemes already approved provide for 107 motor coaches and 63 trailers in substitution for 57 steam locomotives; the first of these are operating in the West Riding of Yorkshire. There are at present some 270 diesel shunting engines operating on British Railways and a replacement programme spread over five years, provides for a further 573 diesel shunting engines in replacement of 635 steam locomotives. With the completion of this scheme there will be 800 diesel locomotives on British Railways. This represents 30 per cent of the shunting locomotives employed, and some 460 diesel shunting engines will be operating in what is, from the point of view of smoke pollution, the "black" area. The present programme does not represent completion of the substitution of diesel shunting engines for steam locomotives, and a further programme is under consideration.

Training of staff with particular reference to the efficient use of coal, which minimises the amount of smoke emitted, is part of the policy for training both drivers and firemen, a subject to which the British Transport Commission has given much thought. The training is arranged on a depot or District basis, with groups of up to 12 men, who are instructed in the functions of various locomotive fittings and the lighting up and maintaining of fires. Before a cleaner may act as fireman he is given a period of two weeks' preliminary tuition by a fire inspector, which includes practical instruction and administration; oral examination is also conducted. For subsequent promotion to driver, a careful examination of the candidate is made by a locomotive inspector. This examination is much more detailed, and the prospective driver has to satisfy the instructor as to his knowledge of manipulation of the locomotive including firing problems, which include that of emission of smoke. Practical tests form part of the examination.

There are also some 300 mutual improvement classes on British Railways; these are held by the men themselves, but assistance is given by the management, including provision of accommodation. They function on an entirely voluntary basis and are attended by men from the various depots. In addition, lectures are given by recognised class lecturers and also by District Motive Power Superintendents. A very high standard of efficiency is attained, according to Mr. Harvey, particularly in knowledge of combustion, which is a predominant feature of the lectures.

Prizes are awarded by the British Transport Commission. Instruction trains also are used, in which the correct methods of obtaining efficient combustion which results in less smoke, are emphasised; the tuition is supplemented by sound films with particular reference to the working of locomotives.

Considerable research and development have also taken place in the design of motive power shed roofs, more from the point of view of dispersing smoke out of the shed. At a depot to be erected in the near future, it is proposed to erect a chimney some 200 ft. high to draw smoke from the ducts and disperse it at a high altitude. While this will not reduce the volume of smoke, it will release it at a higher level, where it is less offensive. Pre-steaming, much practised in the U.S.A. and Canada, in which steam is introduced into the locomotive boiler from a stationary boiler to give it an initial head of steam of about 100-lb. p.s.i., after which the blower is used, is to be tried out in a British Railways motive power depot so as to provide the necessary data for a future decision. To reduce costs, the scheme for pre-steaming has been combined with one for the hot water washout of boilers; the stationary boilers, therefore, will provide steam for dual purposes. Besides producing initial steam, it will also, through use of the blower, much reduce the amount of smoke emitted from the running shed.

July-August Traffic Trends

THE holiday season is at its height in the four-week period from mid-July to mid-August and invariably causes railborne traffic to contract sharply. This year British Railways had the worst experience of this tendency since 1948. No. 8 of *Transport Statistics*, shows that they originated only 16,363,000 tons of freight train traffic, a decrease of 839,000 from 1953 (4.9 per cent) and no less than 1,764,000 tons below 1951 (9.7 per cent).

This is the first occasion on which total forwardings in any four-week period have fallen below 17,000,000 tons. For the first time also, merchandise and livestock tonnage failed to reach the 3,000,000 mark; forwardings of 2,916,000 tons were 268,000 below 1953 (8.4 per cent) and 603,000 below 1951 (17 per cent). Minerals were loaded in all previous periods to the extent of more than 4,000,000 tons, but only 3,906,000 tons were put on rail—a decrease, from last year's record, of 407,000 tons (9.4 per cent). The quantity of coal and coke declared was 9,541,000 tons, the smallest amount loaded in any period since nationalisation. The London Midland, Western, and Southern Regions lost 342,000 tons of coal, while the Eastern, North Eastern, and Scottish Regions gained 178,000 tons, making the all-line decrease 164,000 tons (1.7 per cent).

Aggregates of originating traffic during 32 weeks to August 15 fill a table which shows decreases in all Regions adding up to 2,194,000 tons for the whole system (1.3 per cent). For the 24 weeks to June 20, the loss of traffic amounted to 634,000 tons (0.5 per cent), so that 1,560,000 tons disappeared in the next eight weeks. That large decrease was made up of 461,000 tons of merchandise, 650,000 tons of minerals, 430,000 tons of coal and coke and 19,000 tons of livestock. The trend of coal forwardings is disappointing, an increase of 203,000 tons at June 20 being converted into a loss of 227,000 tons at August 15, owing mainly to lower forwardings in the Western, Southern and Scottish Regions. Normally the four-week period to mid-September produces a satisfactory volume of freight and the advance statement of receipts raises hopes that some of the lost ground was recovered.

In Period 8, British Railways worked 1,298,391,000 net ton-miles, 100,775,000 fewer than in 1953 (7.2 per cent). All Regions did less haulage; the decreases ranged from 1.9 per cent in the North Eastern and 3.9 per cent in the Eastern to 9.1 per cent in the Western and nearly 10 per cent in the London Midland. For 32 weeks to August 15 total ton-miles were down 308,043,000 (2.2 per cent), though the Eastern Region worked 34,366,000 more (1.2 per cent) and the North Eastern 23,141,000 more (1.7 per

cent). Both Regions turned out more ton-miles with all classes of traffic—quite an exceptional feat during the current year.

PASSENGER TRAFFIC

The *Bulletin* for Period 8 contains no fresh particulars of passenger travel on British Railways after the month of June. In the four weeks to August 15, London Transport carried 41,925,000 passengers by rail, 786,000 fewer than in 1953 (1·8 per cent). By road, London Transport moved 273,130,000 people, a decrease of 11,269,000 (3·9 per cent). These decreases bring the number of passengers lost in the first 32 weeks of the year to 67,249,000 (2·6 per cent).

Road Passenger Transport, Provincial and Scottish, carried 198,780,000 people in the July-August period. That was an increase of 738,000 (0·4 per cent) and raised the aggregate advance over 32 weeks to 18,945,000 (1·3 per cent). The Scottish Group was rather more successful than the Tilling Group in securing additional customers.

East African Railways & Harbours

THE report for the year ended December 31, 1953, which has been sent to us by Mr. A. F. Kirby, General Manager, East African Railways & Harbours, is the first to bear his signature. In it Mr. Kirby praises the work of his predecessor, Mr. A. Dalton, who retired in June, 1953. During Mr. Dalton's term of office was initiated the large-scale programme of development, much of which is only now beginning to materialise and will, Mr. Kirby hopes, see abundant fructification during the next 10 years. Mr. Dalton is given credit for much of what is beginning to be seen in the way of additional rolling stock, extension of facilities and new deep-water berths at E.A.R. & H. ports. The report shows that the combined receipts from railways and harbours fell slightly from £15,470,000 in 1952 to £15,454,000 in 1953. The combined receipts were therefore very similar for the two years, but working expenditure increased in 1953 by £1,260,342, or nearly 12 per cent. The year 1953 was one of drought, poor crops, erratic movements of imported grain, dissipation of transport capacity in the movement of public and railway water supplies in Tanganyika, and other abnormalities. Behind all these was a background of civil unrest.

Despite these difficulties, freight totalled 4,736,793 tons, including non-revenue earning traffic, compared with 4,720,175 the year before. Ton-miles rose by 41,000,000 to 1,439,535,000. The number of passengers fell by some 10 per cent, the total for the year being 5,794,133. The reduction can be traced largely to the effects of the Kenya Emergency. Imports and exports fell slightly from the record figures of 1952 and were just under 4,000,000 tons. Much of the tonnage transported during the year was military and famine relief traffic at low rates. It is for this reason that the increased tonnage carried is not reflected by increased goods receipts. Net revenue was £1,866,950, whereas in 1952 it was £3,309,554. Loan interest and redemption charges were higher than in previous years, and the surplus for the year was thus reduced to £600,912, compared with £2,352,773 in 1952. After contributions to standing reserve funds, and taking in £288,067 brought forward from last year, the sum of £680,000 was placed to the betterment fund. This fund exists to enable the administration to finance the provision of additional facilities from current revenue.

Approval was obtained in December, 1953, to the raising of railway freight rates by 20 per cent as from January 1, 1954. Rates before this had averaged only 15 per cent above the prewar level, while costs of materials and fuel had increased by anything from 100 to 600 per cent. Provided that costs remain reasonably stable, and traffic resumes the expected rate of increase, it is hoped that the existing rates will be maintained for some years.

By December, 1952, £17,750,000 of the £59,250,000 post-amalgamation authorised loan programme had been

raised, and during 1953 a further £5,250,000 was raised on the London market. Agreement was reached with the Foreign Operations Administration of the U.S.A. for a £2,390,000 loan. Authorisations of £3,500,000 under the 1951 Loan Act, for rolling stock only, and £32,750,000 under the 1952 Act for general improvements, new railways, and port extensions, remain. The American loan will be used for port improvements at Mombasa and Tanga. At the time of the report, negotiations for a loan from the International Bank for Reconstruction & Development were in progress. This may be used to finance the purchase of rolling stock ordered under the 1951 and 1952 Loan Acts. The following are some of the more important results in 1952 and 1953:—

	1952	1953
<i>Railways, steamers, and motor transport—</i>	(Thousands)	
Total train-mileage	8,605	8,920
Passenger journeys	6,434	5,794
Goods tonnage carried	3,811	3,822
<i>Coaching receipts</i>	1,937	1,991
<i>Goods receipts</i>	10,111	10,108
<i>Total receipts</i>	12,571	12,627
<i>Working expenses</i>	8,827	9,896
<i>Harbours—</i>		
Receipts	2,899	2,828
Expenditure	1,982	2,173

Uncertainties and delays in deliveries of stores from overseas present considerable problems of stores supply, but the average stock has been held down to six or seven months consumption. The value of stocks, largely because of price increases, has risen from 22·9 per cent of total revenue in 1948 to 35·9 per cent in 1953. This has created difficulties, as working capital has not been available, and stores holdings have had to be financed from reserve funds earmarked for other purposes. An endeavour is to be made to build up working capital by annual contributions from surplus revenue.

Public goods traffic decreased by 0·8 per cent in tonnage compared with 1952, the main reason being the severe drought which was experienced during the year. The total tonnage carried, 4,736,793, was 16,618 tons more than in the previous year, and in terms of ton-miles the transportation output for public traffic was 1·3 per cent better than in 1952. Taking public and departmental traffic together, the output was better by 2·9 per cent. There was a sustained increase in the rail lift from the coast, which rose from 1,100,000 to 1,200,000 tons.

Four new crossing stations and the lengthening of nine station loops improved the capacity of the line between Mombasa and Nairobi. Six further crossing stations are to be provided. Other improvements in line capacity were made by the installation of two crossing stations between Nairobi and Eldoret, and the lengthening of loops on the Tanga and Central Lines. Orders were placed during the year for 34 Beyer-Garratt locomotives, the largest and most powerful to be built for a metre-gauge railway. It is hoped that they will come into service early in 1955. Large numbers of wagons are expected to arrive in 1954 and 1955, but only 46 arrived in 1953.

All main-line locomotives on the Kenya—Uganda and Tanga sections are now oil-burning, oil fuel installations on the Tanga line having been completed during the year. The first section of the Western Uganda Extension Railway was opened from Kampala to Mityana on August 1, 1953, and it is hoped that the line will reach the terminus at Kasese, a further 164 miles, during 1955.

There was a general increase in imports through the East African ports in 1953, but exports fell as a consequence of the drought conditions and the civil disturbances. Mombasa, the only port at which cargo restrictions were necessary, imported 1,872,000 tons, 42,000 tons more than in 1952, but exports, at 891,000 tons, were 161,000 tons less than in the previous year. Works estimated to cost £4,500,000 are in hand at Mombasa, and a further £1,000,000 was approved for development of marshalling yards, a locomotive depot, and industrial areas at Changamwe to provide for the further expansion of Mombasa port.

The road services of the Administration carried 304,000 passengers and some 72,000 tons of goods in 1953. The inland water services carried some 305,000 tons of freight and nearly 316,000 passengers.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Extravagant Mechanisation

September 19

SIR,—Allow me to comment on the remarks made by Mr. C. R. Sweetingham in his letter in your September 17 issue, that railways are more efficient than they were under private ownership, though he admits there is vast scope for improvement.

I refer to what is known by some as the "golden mile" at Willesden, where trains take an extravagant time crawling through the carriage washing machine, with consequent high operating costs. All that is needed is the principle of the oily rag for wiping down valuable rolling stock in place of the present washing machine, and so save hours for engines, enginemen, and train crews. Or is this considered antiquated and out-of-date thinking?

Yours faithfully,

ROBERT W. LEWIS

Beth-el, 104, Leggatts Way, Watford

Communication Between Driver and Guard

September 18

SIR,—In his letter published in your issue of September 17, Mr. Courtenay Barry comes much nearer to suggesting a practical solution to the problem of communication between driver and guard on goods trains.

As in so many cases today the problem is not so much one of expediency as of finance. Unless every goods wagon in the country is modified at enormous cost, the adoption of continuous brakes must remain no more than an ideal. One must look for alternative safeguards in radio or telephone communication between the two ends of the train.

Any form of telephone system, except on trains hauled by electric locomotives, would again necessitate costly modification of all rolling stock. One is left with two-way v.h.f. radio, the cost of which far exceeds the amount the railways are prepared to spend on solving this particular problem.

The greatest need is on the relatively few trains made up to maximum length where provision of transportable radio equipment, issued at the marshalling yard, which would dispense with the need for installing expensive electric generating apparatus in locomotives and brake vans, might provide an interim solution.

Yours faithfully,

W. B. SHIRES

16, Holland Park Avenue, W.11

Railway Freight Movement

September 24

SIR,—I hesitate to encroach further on your space, but as Mr. A. R. G. Saunders, in his article "A Paradox of Modern Railway Management" in your issues of August 20 and 27 and September 3, quotes from my recent book, I will comment briefly on that particular aspect.

A locomotive is a mechanism and must be treated as such if it is to give satisfactory service. Were a road operator consistently to overload his vehicles and flog them over the road, his repair bill would soon begin to catch up with his revenue. Not only that, but he would become faced with expenditure on new vehicles ahead of amortisation dates. The same applies to railway engines.

If traffic cannot be moved promptly without abusing existing motive power, then larger engines are needed; the economical extent of such capital expansion being decided by the management.

When ordering larger engines, it would be foolish not to obtain ones capable of hauling maximum loads, so, by a natural process arriving at heavier train loads, less

train miles and greater "efficiency"; at the same time giving better traffic service, as more goods will be carried from point to point at the same time.

When Sir Henry Fowler was Chief Mechanical Engineer of the London Midland & Scottish Railway, he designed and began to build some large locomotives, but the traffic department preferred plenty of small engines hauling small trains, and his enterprise was frustrated, only to become fully justified later; for Sir Josiah Stamp, President of the L.M.S.R., became so concerned at the mounting cost of locomotive running and repairs, that he instituted the individual costing of every engine—a measure that has been termed "a magnificent tool of management." It is unlikely that this would have been so, were locomotive running and repair costs as immaterial as Mr. Saunders suggests.

Surely Mr. Saunders is not suggesting that some railways hold back the prompt movement of available traffic so as to produce good-looking statistics?

Yours faithfully,

G. V. O. BULKELEY

Botha's Hill, Natal

Slackening of U.S.A. Economic Activity

October 2

SIR,—The article in your October 1 issue proves that as the years pass the U.S.A. railways rely more and more on freight revenue to make ends meet. It does not stress the point that freight is less dependable as a source of revenue than it used to be. The once valuable less-than-wagon-load traffic is shrivelling rapidly. In 1923, the railways originated 44,338,000 tons of "smalls," which occupied 12,165,000 wagons, 24 per cent of the total number forwarded. The 1953 tonnage fell by 81 per cent to 8,255,000 tons which used 3,504,000 wagons, 9 per cent of the total forwardings. The decline continues in 1954, "smalls," needing 10 per cent fewer wagons in the 28 weeks to July 10. The loss of each ton leaves the railways poorer by nearly \$39, equivalent to the receipts from 13 tons of minerals.

Over the same period of 30 years, the total freight train traffic originated rose from 1,279 million tons to 1,376 million. This increase of 8 per cent is paltry compared with the great advance in the population, productive capacity and wealth of the States. The railways would have been in sore straits if the average haul had not lengthened from 300 to 420 miles and lifted revenue ton-miles by 46 per cent. The railways coped with the growing volume of movement by trebling the output of freight train operation, as measured by "net ton-miles per train hour." The rapid change from steam to diesel motive power since 1948 improved that statistic by 25 per cent, while freight train speed advanced from 16 to 18 miles an hour. The Association of American Railroads is confident that the railways are being worked more efficiently and economically than ever before, but one has an uneasy feeling that they have passed their heyday as public carriers, at all events in peacetime. In 1925, the railways handled 77 per cent of the total commercial intercity freight traffic and in 1952 only 55 per cent. Their proportion of the total may have fallen to 50 per cent in the current year and is not likely to expand unless a fresh national emergency happens. The railways are retrograding, while oil pipe lines, road transport and inland waterways go ahead. The old saying that the economy of the United States was built around the railway wagon scarcely rings true today.

Yours faithfully,

R. BELL

Frogmal, N.W.3.

THE SCRAP HEAP

Pioneer Train-Watcher

Sir Ernest Barker, who is 80, . . . unfortunately no longer has the physical energy to make train-watching expeditions from his Cambridge home. He took up this pastime long before the modern craze set in.—*"Peterborough"* in *"The Daily Telegraph."*

Not Stopping Any Longer At

Brooding over their maps, the railway kings suffer more and more acutely from spots before the eyes. Those spots are the little country stations which, as seen from a head office in London, look like so many white elephants on the permanent way. That is not how the threatened platforms are regarded locally. At the first hint that in future trains will hurry scornfully past them, a cry of genuine alarm and self-pity goes up. Part of this arises for practical reasons. Every station closed adds to the complications of rural life—a fact that the comfortable urban powers-that-be in the transport world are accused by country men and women of ignoring. But another part is due to the warm affection with which the little stations have come to be regarded.

Determined and too often successful battles were fought to keep them at arm's length in their youth, so that they sometimes stand aloof by a mile or two from the villages after which they are named. The rolling English road does not ramble more eccentrically round the shires than does many a branch line. . .

Time passes quickly on a country station. When the train arrives and worried faces peer from the carriages left aft and beyond the platform, the loiterer

is feeling happy and at home. . . But no one has blared inaudible information at him through a loud-speaker. His old friend in the ticket-and-everything-else-office is worth while hearing on loudspeakers and all the other games played at Waterloo, Paddington, and that triple railway chamber of horrors along the Euston Road.—*From "The Times."*

Two's Company . . . ?

(Extract from accident telegraph form recently received from Munisagara): Brief particulars of accident: Prison escort No. 912 fallen off the train at km. 300. Cause of accident as far as known: Probable—pushed out through window.—*From the "East African Railways & Harbours Magazine."*

Tartan Trains ?

With the news that the Scottish Area of British Railways may soon have powers to introduce appropriate colour schemes and emblems for its rolling stock some Scots are already having visions of tartan trains. In the early days of the old Deeside Railway there was a locomotive painted over-all in the Royal Stuart tartan. It was used to take the Royal Messenger train which daily carried Government dispatches to Ballater when Queen Victoria was in residence at Balmoral. This gaudy engine made a magnificent spectacle when it puffed along Deeside with the sun glinting on its tartan flanks and local residents regarded it with affection.

Another piquant Scottish railway memory is of the occasion in 1896 when the engine of the train carrying home

the triumphant Kingussie shinty team from a championship victory at Inverness was completely draped in the MacPherson tartan and the driver and fireman were garbed in Kingussie jerseys.—*From "The Manchester Guardian."*

Australian Railway Centenary Stamp

The 3½d. stamp in the accompanying illustration was issued by the Commonwealth of Australia to commemorate the opening on September 12, 1854, of the Melbourne & Hobsons Bay Railway, to which reference was made in our issue of September 17. The type of engine used in 1854 on the



Railway centenary maroon 3½d. commemorative issue

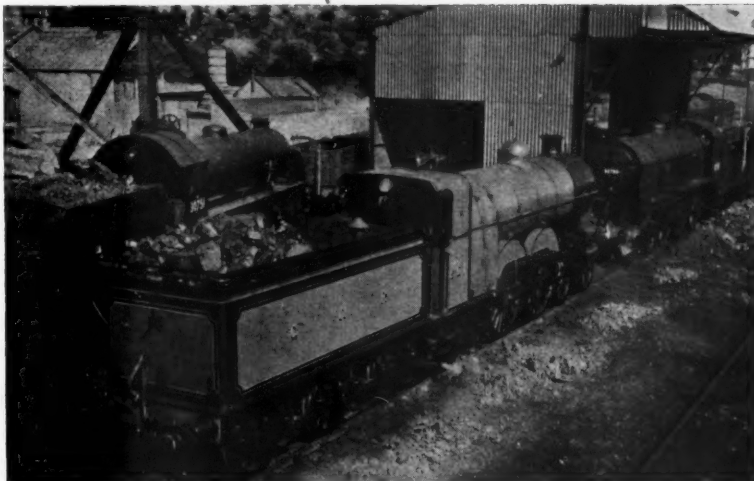
Hobsons Bay line is believed to have been a 2-2-2 tank built by Robertson Martin & Smith (see the Scrap Heap of September 17) but it is not known whether it is this that is depicted on the stamp. The representation of the diesel locomotive relates to the spread of diesel traction on Australian main lines. The colour of the stamp is maroon.

Brass Wheels for Locomotives

A letter dated January 20, 1839, from an engineer, Hyde Clarke, is quoted by a correspondent. "I see no reason," wrote Clarke, "why brass should not be the wheel of the future for locomotive wheels. We well know that in machinery generally, it is considered of great saving in wear and tear to prevent the contact of kindred metals, and perhaps it might be deserving of consideration how far the wear of rails might be lessened by such an expedient. Anything tending to promote this object I know will meet with attention, and it might perhaps be practicable to use brass wheels on our railways with good results. Brass can be cast as hard as cast iron."

As to what action, if any, was taken in Britain to experiment with Clarke's suggestion there seems to be no evidence. John Goodwin, Engineer to the Ulster Railway Company, is said to have fitted a locomotive with webbed brass wheels in 1845. He reported to the company: "The brass wheels we have fitted to our light locomotive stand wear and tear well and are equal in strength to iron and reduce friction, making for sweet running on the line."

Unusual Visitors to the Southern Region



Photo]

[R. C. Riley

Atlantic No. 251 in its G.N.R. livery after hauling a double-headed excursion from Retford to Basingstoke, en route to the Farnborough air display. The other engine (on extreme left) was a former G.C.R. "Director" class, No. 62663

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

RHODESIA

Works at Bulawayo

Work on the deviation of the Salisbury-Bulawayo line through the northern suburbs of Bulawayo is progressing well and it is expected that the line will be opened to traffic soon. A double track will extend from Cement to Mpopoma, outside Bulawayo; there will be a halt at Kenilworth. Good progress is also being made on the line that will link Mpopoma with the main line to the south and enable traffic to and from the north and east to avoid Bulawayo. This line, one mile long, through a cutting 25 ft. to 30 ft. deep, will cost more than £60,000.

INDIA

New Works

Ways and means of accelerating the progress of line capacity works included in the first Five-Year Plan and of carrying out the heavy works programmes which are expected to be formulated for inclusion in the second Five-Year Plan were recently discussed at a two-day conference of the Chief Engineers of the railways.

The conference felt that far more money would have to be spent on line capacity works and construction of new lines under the second Five-Year Plan than that which has been spent in the first Five-Year Plan. Advance planning and placing of indents well ahead of the beginning of works were considered necessary. The question of the requirements and supply position of wooden sleepers was also discussed. It was pointed out that there was a serious

shortage of metre-gauge sleepers and sleepers of special sizes on all railways. Metre-gauge sleepers would have to be imported and the question of importing steel sleepers for points and crossings would be examined.

Pathankot-Madhampur Line

The construction of an eight-mile broad-gauge line from Pathankot to Madhopur has been authorised. The final location and traffic survey was undertaken in April by the Northern Railway. The line will advance the railhead nearer to the River Ravi and thus facilitate the movement of traffic between Jammu and Kashmir. Pathankot is the terminus of lines from Jullundur and Amritsar on the main route of the Northern Railway from Delhi to Amritsar.

VICTORIA

"Overland" Rolling Stock

The roomette sleeping car *Chalaki* of the "Overland" express, operated jointly with the South Australian Railways between Melbourne and Adelaide, has been fitted with cast-steel bogies incorporating Monroe hydraulic shock absorbers to dampen the action of the coil springs. This type of bogie will be fitted eventually to all the coaches of the "Overland."

Oil Fuel

The cost of fuel oil and distillate has decreased lately, but that of black coal and pulverised brown coal has increased to such an extent that the use of more liquid fuel in locomotives is now favoured. The cost of Yallourn precipitator dust has also increased so

much that economics now favour the conversion to oil firing of locomotives originally intended for pulverised brown coal firing. It is now proposed to restrict activities with the pulverised brown-coal-fired locomotives over the next few years to an extension of current research. No. X 32, the only brown-coal-fired locomotive in service, will continue to run and a converted "R" class 4-6-4 locomotive should be operating soon.

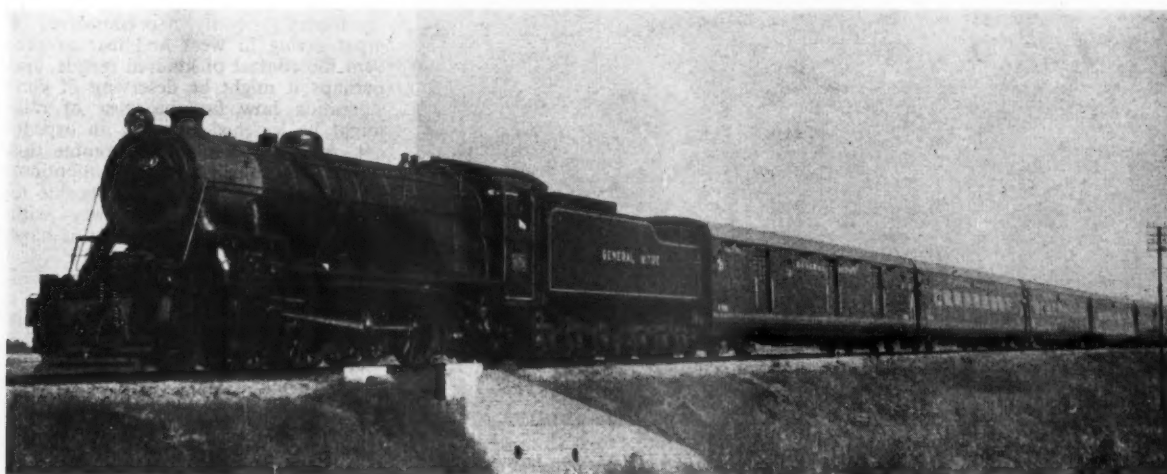
UNITED STATES

Illinois Terminal Railroad

The electrically-operated Illinois Terminal Railroad, an interurban line with 364 route-miles of track, is seeking permission from the Interstate Commerce Commission for the abandonment of almost its entire passenger service. At present four trains run in each direction daily over the 164 miles between Granite City (St. Louis) and East Peoria, one each way over part of the distance (between Granite City and Springfield), and three each way over the 88 miles between Springfield and Champaign. These are losing over \$600,000 annually, and are the services which it is proposed to abandon, leaving only the local passenger service over the 7½ miles between St. Louis and Granite City.

At one time the long-distance trains, which run largely alongside public highways and make many stops, incorporated restaurant accommodation, but with diminishing patronage this has been withdrawn. The I.T.R.R. carries a heavy freight service, which is being gradually turned over to diesel haulage, and with the continuance of

Main Line Haulage in Argentina



Vulcan-built 4-6-2 locomotive, with British-Caprotti poppet valve gear, hauling a train of new rolling stock supplied by Werkspoor N.V., General Mitre Railway, Argentina

this development it seems probable before long electric working over most of the system will be abandoned also.

Selling a Boston & Maine Branch

A transaction of an unusual nature has been authorised by the directors of the Boston & Maine Railroad, and will go through, subject to Interstate Commerce Commission sanction. It is the sale to Mr. S. M. Pinsky, of Boston, of the Concord-Claremont Junction branch, 56.7 miles long, with a short freight branch from Contoocook to West Henniker. Included in the sale is the railmotor which makes a daily round trip over the line, carrying passengers, mail and express.

The purchaser desires to carry on freight service, and also passenger service for as long as the railway continues to hold a mail contract. He intends to operate the line exclusively by diesel power. Because of statutory burdens on Class I railways, it is much cheaper to work a branch of this description as a "short line" railway, and already Mr. Pinsky is operating three other "short lines"—the Hoosac Tunnel & Wilmington, 25 miles; the Saratoga & Schuylerville, 26½ miles; and the Sanford & East-ern, 31½ miles. The two last-mentioned also were parts of the B. & M. system and were purchased by Mr. Pinsky.

SWITZERLAND

Aluminium Floodlighting Towers

In a new floodlighting installation for the marshalling yard at Bienne, groups of projectors are mounted on tubular aluminium towers 105 ft. high. At the base the diameter is 5 ft. 3 in., and a door gives access to a vertical ladder inside the column which leads to the top

platform. Although the diameter at the platform hatchway is only 2 ft. 3 in., it is considered that the ascent will be less exacting than that of a lattice girder tower, particularly at night and in bad weather. The tubular tower has internal electric lighting and intermediate platforms where the climber can pause in safety and comparative comfort before reaching the top. This type of tower is assembled on the ground in sections with a maximum length of 30 ft. and can be erected on its concrete base in 30 min.

FRANCE

Level Crossing Abolition at Bordeaux

Reference was made in our issue of August 7, 1953, to the work being carried out at Bordeaux to abolish level crossings over Route Nationale 10, involving the construction of connecting lines and the strengthening of the Pont Rouge.

This work has now been completed and the official opening ceremony was performed by Monsieur Chaban-Delmas, Minister of Public Works & Transport and Mayor of Bordeaux, on May 16. The scope of the work can be gathered from the materials used: 2,600 tons of steel, 31 km. (19 miles) of piling and 18,000 cu. m. (23,000 cu. yd.) of concrete.

Strengthening Budd Railcars

By the end of 1953 each car of the Budd type stainless steel electric multiple-unit stock put into service in 1938 on the Paris-Chartres line, had completed, on the average, 1,000,000 km. It was found that systematic damage was resulting at the lowest section of the door frames at running board level. Static and dynamic tests showed that at

the point in question the stress on the metal of 24 kg. per sq. mm. was too great. Shaped components and steel sheets were used to transfer part of the stress to neighbouring uprights and horizontal stays; vibration was absorbed by inserting rubber pads under the spiral suspension springs. The static stress was thus reduced to 2.8 kg. per sq. mm. and the trouble overcome.

Radio Telephony in U.S.S.R. Marshalling Yards



[Photo]

[D. Silverman]

Shunter using handset on exterior of cab, which contains transmitter, receiver, and additional handset

Publications Received

Elektrische Triebfahrzeuge: (Electric Locomotives, Motor Coaches and Railcars) by Karl Sachs, Professor at the Zurich College of Engineering. Published under the auspices of the Swiss Electrical Engineering Association by Huber & Co., Frauenfeld, Switzerland. Two vols. Vol. I 700 pp. 10½ in. × 7½ in. with 847 figures; Vol. II 696 pp. with 850 illustrations and 16 folding plates. Price complete in case 65 fr.—Some 25 years ago the author of this monumental work issued one covering main-line electric locomotives. He also wrote one on the fixed equipment of electrified lines. The progress made since in electric traction and its increasing extension created a need for a more complete treatise, which, however, was economically impossible without assistance. Now, with the aid of the leading industrial undertakings in Switzerland and the managements of the Swiss Federal and private railways, these two remarkable volumes have been issued at a most modest price. The author has followed the lines of his earlier work with especial attention to the mechanical side of the subject, the design of

bogies, frames, vehicle bodies, drive mechanisms, brakes and so on. The first volume is occupied with these and the general theory of electric propulsion, the second being devoted to electrical apparatus, motors, transformers, control and switchgear and accessories, and special types of rolling stock. The work is dedicated to the memory of the great pioneer of electric traction in Switzerland, Emil Huber-Stockar.

Compact Couplings.—A form of automatic coupling much used by industrial railway systems and by light railways, but quite capable of use in main-line railways for fixed-formation diesel and electric trains is the Compact type, made by the Bergische Stahl-Industrie, of (22a) Remscheid, Germany. It is available either as a simple mechanical coupling or with automatic electric and air brake connections also; and all these forms are illustrated and described in a six-page leaflet "Selbsttätige Compact Kupplung," issued by the maker.

Wiggin Nickel Alloys.—The latest issue of Wiggin Nickel Alloys, the technical journal of Henry Wiggin & Co. Ltd., is a special issue for the electrical indus-

tries. It covers, however, a wide range of subjects of more general interest, indicative of the diversity of the applications of wrought high-nickel alloys in industry. The main article deals with the development and production of the Brightray series of electrical resistance materials. Other subjects include the use of Nimonic 90 springs, for drill-hardening jigs; properties and uses of Permalloy C upset forging of Nimonic 80A turbine blades. Copies may be obtained from Henry Wiggin & Co. Ltd., Thames House, Millbank, London, S.W.1.

Rail et Route.—With its hundredth issue, that of September, our French contemporary *Rail et Route* ceases publication. Its place will be taken by a new monthly journal, to be published by the Librairie Chaix, 17, Rue Bonaparte, Paris 6, called *Transmondia* and intended to cover all forms of transport. Current subscriptions to *Rail et Route* will be transferred to the new journal, due to appear this month, or the necessary refund will be given. The last number of *Rail et Route* contains a review of railway and road development in France since the liberation.

The International Union of Railways

A survey of recent activities of the committees

(By a correspondent)

THE principal object of the International Union of Railways (U.I.C.), founded in 1922, was the standardisation and improvement of railway operating and railway equipment, the emphasis being on international traffic. Most of the European administrations have become members, as have also certain administrations outside Europe but associated with the European railway system, such as those of Turkey and North Africa.

The General Assembly of the U.I.C. meets every year and all member-administrations are represented. The voting rights at the meetings of the assembly are governed by the number of kilometres of line being worked by administrations, and ordinary expenses are divided in relation to the number of votes held.

The executive authority, the Board of Management, makes all decisions on proposals put forward by the various committees except those dealing with administrative or financial matters, which are reserved for decision by the General Assembly. The work of the board is prepared by an Office of Common Affairs, composed of the general managers of the main administrations. British Railways are represented both on the Board and in the Office of Common Affairs by a Member of the British Transport Commission.

At a meeting at Utrecht in January, 1950, it was decided to establish a bureau (O.R.E.) to deal with scientific research relating to railways and general co-ordination. The bureau was set up at Utrecht and is under the direction of the Netherlands Railways. An information centre for the railways (C.I.C.E.) was also established in Rome, and is directed by the Italian State Railways. In addition, the Brussels Central Clearing House, which since 1925 had been responsible for clearing accounts between administrations, resumed its activities under the direction of the U.I.C.

International Agreements

In November, 1950, an agreement was concluded between the General Assembly and the International Railway Transport Committee (C.I.T.), the European Goods Timetable Conference, the International Carriage & Van Union (R.I.C.), and the International Wagon Union (R.I.V.), with the object of making the U.I.C. the body responsible for co-ordination and unity of action between international railway organisations. A special agreement has been made between the U.I.C. and the European Timetable Conference, to govern the relationship of the two bodies.

There are six committees engaged in the activities of the U.I.C., their

functions being Passenger Traffic; Goods Traffic; Finance, Accountancy and Statistics; Operating; Technical Questions; and General Studies. British representatives serve on all of these committees.

Some of the recent work of the U.I.C. and its committees is outlined below.

Passenger Traffic

In the matter of passenger services efforts have been directed of late years towards establishing uniform types of rates for passengers and baggage and the chairman of the Board of Management has been authorised to decide, as a matter of urgency, that the agreed scales shall be applied in the near future. Rates for workmen and children attending school, collection and delivery of baggage, and sleeping accommodation, are being actively investigated, as is the consequence of the decision to have only two classes of carriage, referred to in previous issues of this journal. Alterations in passenger train timings to come into force next summer are being discussed by the International Timetable Conference now in session in Budapest.

It is hoped to see applied, independently of formal government adhesions, the agreements made for facilitating traffic of all classes across frontier points.

Freight and Parcels

Encouraged by what has been achieved with passenger traffic, international freight and parcel rates also have received close attention with the object of eliminating the lengthy lists of charges hitherto in force. A beginning has been made with establishing a measure of uniformity and eliminating wasteful competition.

A committee is to investigate, with interested associations and industrial concerns, the question of packing. The committee is drawing up instructions covering the packing and storage of certain classes of freight. A list of rates for consignments to international fairs and exhibitions, a table assimilating terms used by the U.I.C. to those used by the Customs authorities, and one of standard classifications covering international trade, also have been prepared, and a dictionary in French and German, covering 330 terms dealing with rates and fares, is being worked out. The question of rates for refrigerated consignments is being specially examined.

Attempts to accelerate freight traffic by concentrating it on certain main routes are being pursued, so far without conclusive results. A considerable advance is looked for next year.

Ten managements are availing themselves of the "Europ" wagon pool; a basis for a common agreement cover-

ing that has been reached and attention is being concentrated on deriving the maximum financial benefit therefrom. Standard methods of marking wagons are being worked out. It is hoped shortly to bring all instructions relating to privately owned wagons together on a standard chart, in close association with interested parties.

Container Traffic

Containers are being studied with a view to reducing weight and new forms of pallet are under discussion. A division of specifications is being considered taking into account the work of the European Economic Committee (C.E.E.) covering the admission of containers to traffic carried under Customs seal. Designs for containers for rail and sea transport also are being considered. The increase in refrigerated consignments offers problems of its own, such as re-icing on the journey.

Operating Questions

The desire to reduce operating expenses and cut down running and maintenance staffs, while, at the same time, raising the standard of safety has led to consideration of such measures as reversible line working and C.T.C. Experience so far obtained with these arrangements is being collated. A draft regulation for traffic working on cross-frontier lines has been prepared to guide managements in drawing up agreements on that subject.

Standardisation

Standardisation of rolling stock components has received particular attention and been applied to covered wagon journals and axleboxes and brake fittings, with allowances for interchangeable axles to meet break of gauge. Methods of securing doors, fittings for carrying lamps, and electrical equipment for cold storage stock have also been standardised. It is hoped soon to arrive at standard designs for flat bogie wagons.

Trials are in progress with a view to standardising ordinary covered wagons and those used for early vegetable and flower traffic, to facilitate through international running. The question of a simple form of cover to wagons carrying freight liable to be spoiled by damp but not easily loaded in ordinary closed wagons also is in hand. New specifications have been worked out dealing with the regulation of heating in vehicles by passengers, and the braking of coaches used in certain express services, variable with the load, to be designated by a special sign. The "KE" type of Knorr air brake has been recommended for admission to international trains.

At the meeting of the committees held in Hamburg last June, as recorded in our July 30 issue, seven new specifications were approved dealing with drawbar hooks, screw couplings, wheel bodies, axles, and leaf springs. Another specification for wagon sheeting, is being treated as a question of special urgency.

Of late years the Union has been especially active in this class of standardisation work, covering, besides rolling stock, items of permanent way and signalling equipment.

Electric and Diesel Traction

Much attention is being directed to questions concerning both electric and diesel traction. Draft specifications are ready for grooved contact wire, as a result of the work of the O.R.E. on catenary design. Practical trials are in progress, and it is hoped to agree on definite wording of the specifications at the next session. The French and German railways are to draw up rules for through working of 50-cycle a.c. electric locomotives in anticipation of future electrification of lines connecting these systems.

The Union is co-operating with inter-

national bodies in the matter of equipment for electric locomotives and motor coaches and has for the first time dealt with a technical question referring to diesel working in defining engine power and prescribing conditions for the reception of material.

Standard Rails

Drawings have been completed for a 54 kg. per m. standard rail and a 60 kg. design is in preparation. The rail steel specification generally agreed in 1953 has been subject to comments which are to be examined in conjunction with representatives of industry. A specification for timber sleepers is well advanced while more liberal low-level clearances to facilitate design of diesel and other rolling stock has been discussed.

Level Crossings

Level crossing protection, especially using automatic warning equipment, for which a draft agreement was arrived at in February last at Geneva by the Economic Commission for Europe, continues to be investigated. Trials of half-barriers requested by that body were made in association with motoring organisations.

Signalling generally, aiming at some uniformity of aspects, has been debated at length and specifications for coloured lenses are being considered, with the application of apparatus designed to increase line capacity.

Extension of teleprinter working is being discussed with other communications improvements, while disturbance to circuits by inductive or other effects from neighbouring traction equipment has been examined in consultation with a number of electrical international organisations.

Railway Terms

A four-language dictionary has been prepared and is expected to appear this year.

Standard documentary forms for statistical returns and statements are being prepared to enable comparisons to be made with the assurance that all figures are presented in an agreed manner making them reliable for that purpose. The first edition of a comprehensive list of net cost and other statistical terms customarily employed in railway work was published under the auspices of the International Union of Railways last May.

Heavy-Duty Shunting Tractor

Provision for fitting three different power units

A FEATURE of the new design of shunting tractor manufactured by the Mercury Truck & Tractor Co. Ltd. is that three different power units can be fitted.

This affords the advantage of satisfying individual preferences, and is also an asset in securing export orders in countries with varying availability of petrol and diesel fuels. The three power units are the Ford 55-b.h.p. diesel engine, the Ford 60-b.h.p. petrol engine, and the Perkins 65-b.h.p. P6 diesel engine.

Chassis Design

The entire chassis frame is constructed of 5 in. \times 2½ in. steel channels, and is bolted and bracketed throughout, using Simmonds lock nuts. It is specially designed to obviate any possibility of distortion when pushing or pulling heavy loads over rough ground or railway tracks.

Heavy steel shunting plates are fitted at the front and rear of the tractor to enable individual trucks to be selected during shunting operations. The front axle is a square-section, forged-steel beam with heat treated axles, also of forged steel.

Differential Gear

In addition, the rear axle incorporates a heavy-duty worm drive fully-floating differential, specially designed for the tractor.



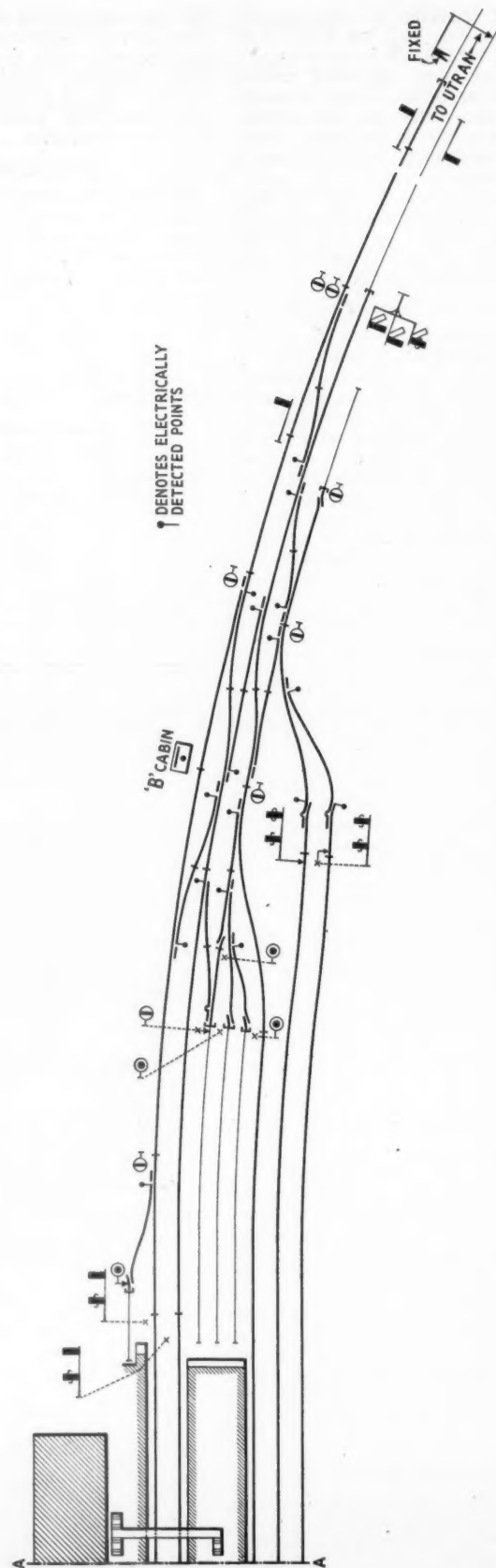
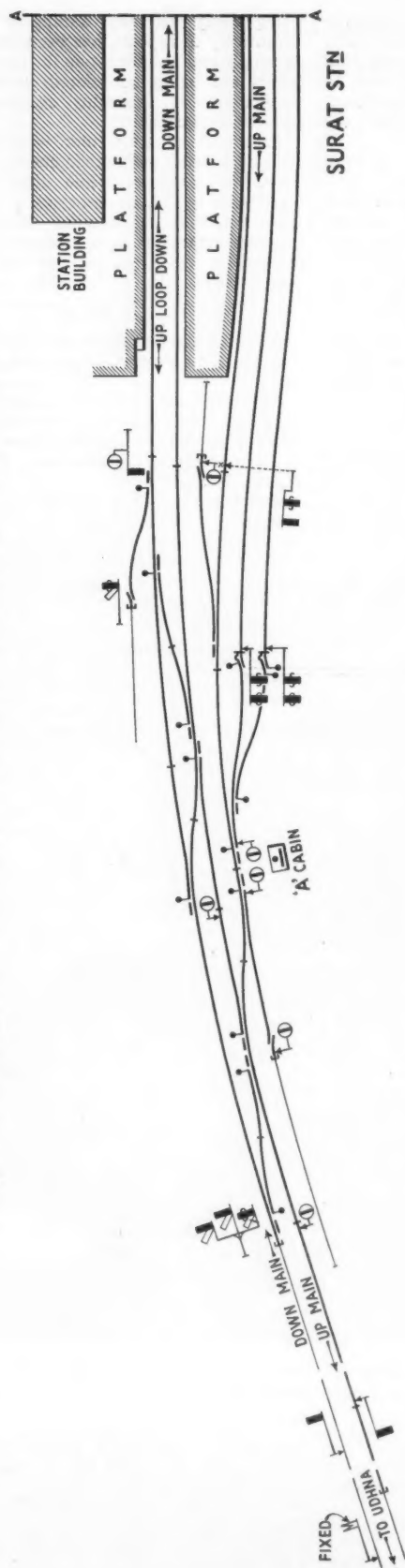
Heavy-duty F55 Mercury shunting tractor which can be fitted with three different power units

Heavy-duty cam-type steering is provided, with specially strong linkage to withstand the strains involved in crossing rail tracks.

An all-steel driver's cab can be fitted to the tractor if desired. The tractor is capable of pushing 150 tons on level

rail, and is extremely manoeuvrable, being able to turn in a complete circle of just over 20 ft. It has a maximum speed of 14 m.p.h. and a maximum drawbar pull of 5,500 lb. The overall length is 9 ft. 10 in. and the width 4 ft. 7 in.

Remodelling at Surat, Western Railway of India



Passenger station and yard at Surat after remodelling and re-signalling, showing altered track layout, electrically detected points, new signal cabins, and track circuits

Remodelling at Surat, Western Railway of India

Reconstruction of passenger station and resignalling of yard under the Indian Government Five-Year Plan

SURAT, situated on the banks of the Tapti River, is 163 miles north of Bombay on the broad-gauge main line of the Western Railway of India, formerly the Bombay, Baroda & Central India Railway, which latter had its beginnings at Surat and not at Bombay as might be supposed. The opening of the first portion of the railway, from Surat to a point just south of the Nerbudda River, took place in February, 1860. Southwards Bombay was not reached until November, 1864.

The main line at Surat is carried on a high embankment, but the goods yard is at a lower level and the entrance to and from it is from the platform loop line. With the introduction of the first Five-Year plan in 1951, Surat was one of the first stations selected for remodelling of the yard and station buildings.

The train berths on the main and loop lines were inadequate to accommodate the longer trains which were to be run and the station building was too small, with insufficient offices and no amenities for the public in the way of retiring rooms, and so on. The new station yard and building were completed towards the end of 1952.

Amenities for Passengers and Staff

The station building, besides containing all the usual offices required by the transportation and other staff, includes refreshment, retiring rooms and bathrooms. Retiring rooms and bathrooms also have been provided for railway staff on inspection duty. These rooms occupy the whole of the second floor. As the platforms and tracks are on an embankment, the entrance from street level is in the basement of the building. The main entrance leads on to a concourse with a broad stairway on either side leading to the loop line platform, and the refreshment and retiring rooms. Access to the up and down main island platform is by a subway from the entrance concourse. In the reconstruction work, the loop and island platforms were considerably lengthened and also widened. The platform lighting is fluorescent.

When the points at both ends of the yard were moved north and south, because of the lengthening of loops, the original signalboxes, one at each end of the yard, had to be scrapped. The new buildings are of ferro-concrete, with steel window framing, built on piles as the steep embankment was mainly composed of black cotton soil. "A" cabin, at the south end of the yard, has a 48-lever frame and "B" cabin at the north end, a 56-lever frame, both being the Saxby & Farmer 1924 type.

Continuous track circuits are provided from the home signals to the

advance starters, a short track being used at the latter signals so as to replace them automatically to danger when passed by trains, these being the last stop signals giving access to the block section ahead.

Point Operation

Reactance-fed a.c. track circuits are used throughout and as many relays as possible are placed in the signal cabin relay rooms. All points are mechanically operated by means of I.R.S. switch and lock movements in most cases. Important points are fitted with combined switch and lock electrical detectors controlling a.c. three-position point indication relays in the

both sides. The circuits from outside the cabin are conveyed in 1/064 armoured signalling cable of various sizes up to a maximum of 12 cores. The cable terminations are brought to a terminal board in the relay room, the cabin wiring taking off from the other side of the terminals. While the track and point indication circuits are a.c., all other circuits are d.c.

Power is obtained from the station lighting supply which is fed from the grid and stepped down by 230/110-V transformers in the relay rooms. The d.c. supply is obtained through rectifiers which also trickle charge a stand-by battery.

In the upper portion of the cabins,



Track relay and track feed location in yard

relay rooms. The advance starter and home signals are fitted with electrical signal replacers installed under the lever frame in the cabin basement. All signals are wire operated. On a vehicle passing a signal in the off position fitted with an electrical signal replacer, the arm returns to the stop position independent of any action by the cabinman. With the home signals, their replacers cannot be energised to allow their arms to be lowered unless all the tracks concerned are unoccupied and the control or slot lever from the other cabin has been operated. All the inter-cabin controls are electrical, the control lever in the pulled position operating a relay in the other cabin.

All other signal levers are fitted with combined lever locks and circuit controllers, the locks being released when the requisite track circuits are clear. In the relay room adjoining the cabin basement, the relays are placed on open fireproof shelves, accessible from

the lever numbers are reproduced on small circular, cast plates fixed to the levers. The plates giving lever description, release numbers, and so on are of aluminium, engraved and fixed to a board attached to the lever shelf.

Track Diagrams

The illuminated track diagrams are of the standard Western Railway type, the plan being depicted on black paper in colours. The diagrams are of the normally dark type, the presence of a train being indicated by an oval red light in the centre of the track circuit. Both the diagrams were manufactured departmentally as all other diagrams have been since the prototype was designed, manufactured and installed by the B. B. & C. I. R. in 1930.

The block instruments, one in each cabin, are mounted on the instrument shelf and are Tyer's three-position one-wire. Full lock and block features have been added by the railway.

Recovery of Bridge from Closed Branch Line

Removal of lattice-girder bridge from Alnwick-Coldstream branch, North Eastern Region



Rolling out in progress; the northern ends of the girders can be seen clear of the abutment

THE heavy floods which occurred in the North of England and in Western Scotland during August, 1948, cut in several places the railway branch line which ran through Alnwick by way of Wooler and Coldstream to Berwick-on-Tweed. The railway was breached in two places and after a thorough review the decision was made to discontinue through working.

From the autumn of 1948 a freight service operated over the section between Alnwick and Ilderton. This was eventually withdrawn on economic grounds, and in March, 1953, the line was abandoned, and arrangements were put in hand to recover the track.

One bridge on this section which had suffered no damage and was still in excellent condition was Bridge No. 59, which carried the single line over the River Breamish north of Hedgeley Station. This was a single span wrought iron structure, with hog-backed lattice main girders 104 ft. 6 in. long, 10 ft. 1 in. high at mid-span and 2 ft. 3 in. wide, each girder weighing 29½ tons. The bridge was of sufficient strength to carry the heaviest engines, and eminently suitable for erection elsewhere. The bridge and the railways south to Hedgeley were on a falling gradient of 1 in 110.

The main girders could not readily be dismantled into sections suitable for transport and re-erection. It was, therefore, decided to close them up to each other, tie them together to ensure lateral stability, and roll them to the Hedgeley side of the river for loading on to rail wagons by crane.

Preliminary Measures

As a preliminary measure to facilitate later removal of the bridge floor, rivets in the floor plating, rail bearers, and cross girder connections were cut out and replaced by temporary bolts. When the last wagon of permanent way material recovered north of the bridge had passed over it, the bridge was jacked

up by four 50-ton hydraulic jacks to the level, 2 ft. 6 in. above the lower bed plates, at which the main girders were to be rolled out. Sleeper cribs were formed on the abutments, and across these old rails were laid on their side, and their webs made up with mild steel plate to form sliding paths for traversing the main girders. Plating, rail bearers, and cross girders were then removed from the bridge floor with the aid of a 3-ton mobile crane. By means of "Sylvesters" the two main girders were traversed to within 4 in. of each other and tied together with mild steel angles across the end plates and top booms. Lifting brackets were bolted to the ends.

South of the bridge, the permanent way was slewed to the west side of the embankment, and strengthened with additional sleepers for crane working

and a continuous sleeper crib was formed alongside the track for the rail rolling path.

Trestle-Supported Roller Track

Meanwhile, at mid-span of the bridge, a timber trestle was built on a bagged concrete foundation on the river bed. This, when completed, carried a rolling track 7 ft. 6 in. long, which was calculated to provide longitudinal stability during rolling.

The rails forming the upper and lower rolling tracks, from which lettering and other irregularities had previously been ground off, were then fitted. Hand winches were fixed on the north and south sides, in the centre line of the girders and about 150 ft. from them; two anchorages were formed on each side, and at the foot of the south embankment, for rigging guide ropes; and a kentledge of scrap chairs was placed in the bottom booms of the girders at the south end to counterbalance the weight of the rail rolling track fixed under the north half, and to increase stability.

Rolling Out

The main girders were jacked up, 3-in. dia. steel balls inserted between the upper and lower rolling track rails at the trestle and at the south abutment, and the girders were then lowered on to them. The north ends of the girders were then further lowered until the whole weight was taken by the trestle and the south abutment. The winch at the south end, assisted as necessary by a "Sylvester" anchored to the permanent way, hauled the girders forward. Steel

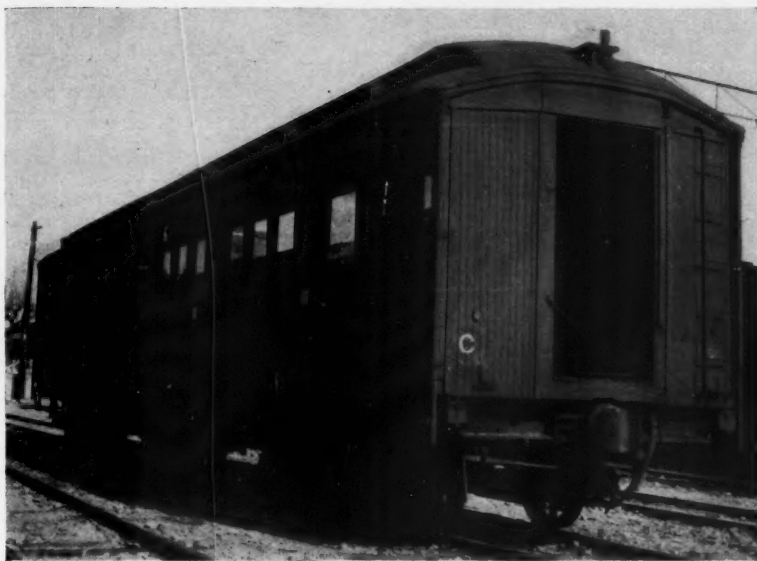
(Continued on page 408)



The girders partially drawn on to the prepared paths. Steel balls are being transferred to front end of the girders

Japanese Railways Conversion of Rolling Stock

Extension of frames and replacement of timber by steel bodies, with modified type of roof



Third class coach with timber body, clerestory roof, and 52-ft. 6-in. underframe, before conversion

THE Japanese National Railways are carrying out a large-scale programme of rolling stock conversions, which was originally put in hand in 1949. Up to the end of 1953 some 2,500 had been completed. Much difficulty was experienced in dealing with traffic at the end of the war; no replacements had been made between 1939 and 1946, and although some new carriages of Japanese construction were placed in service, they were insufficient for increased traffic demands. The gauge of the Japanese National Railways is 3 ft. 6 in.

The programme provided for the conversion of carriages with timber bodies, all of which were built before 1926, and would normally have passed their life limit. These were in such a

condition, especially the main members, pillars, cantrails, floor framing and so on, that economical repair was not possible.

Because of financial and manufacturing difficulties, it would only have been possible to replace the rolling over a long period. The underframes and bogies were in reasonably good condition and capable of repair. During the conversion the underframes, 52 ft. 6 in. long, were cut through at the centre, and lengthened to 63 ft. 2 in. to increase passenger accommodation, and also to conform to the standard design of steel carriages. From 1949 to 1951 conversion was carried out in the National Railways workshops, after which part of the work was undertaken by private manufacturers.

The cost of conversion is stated to be about half the cost of a new carriage. In 1949, when the conversion work was first put in hand, there were 5,860 carriages with timber bodies in use, including some 3,300 of a type somewhat similar to the all-steel stock. Of this number 2,509 have been completed and the remaining 791 are scheduled for conversion in the course of 1955.

The remaining 2,560 carriages with timber bodies will be condemned, and 80 per cent will be replaced by new all-steel stock having more seating accommodation. At the end of next year some 80 per cent of the coaches in use will be of all-steel construction.

Design of Converted Stock

Besides lengthening the body, the width was increased from 8 ft. 6½ in. to 9 ft. 2½ in. The structure of the underframe was altered from a riveted channel type with truss rods to a welded structure, and the truss rods were removed. The side and end framing of the carriage was made in conformity with the more modern all-steel stock, the main members being of steel pressings ½ in. thick. The outside panels are of high-quality steel ⅜ in. thick.

The coaches before conversion had clerestory roofs, which have been replaced by a conventional design. Plywood veneer has been used for interior decoration, including the ceiling; lighting has been improved; and the windows widened. The second class carriages, for working in the Hokkaido Division, where the climate is severe, are fitted with double-glazed windows. Louvers of pressed light alloy are fitted in all stock.

Bogies were strengthened, and the equaliser and bolster springs were replaced by stronger ones, while the bogies in second class stock for use in express trains were rebuilt.



After conversion, showing underframe lengthened to 63 ft. 2 in., and altered roof

Progress of the Western Uganda Extension, E.A.R.

Second section opened to traffic and whole line expected to be completed next year



Formation of spiral on the escarpment which the line descends to reach the Lake George swamp

ON August 1 the Mityana-Musozi (Mile 82) section of the Western Uganda extension of the East African Railways was opened under construction conditions to public traffic, and it is hoped that the line will be opened to Nkonge, 117 miles, early next year.

Progress westwards continues satisfactorily, and all earthworks and bridges are now completed up to the Mpanga river, 163 miles from Kampala. The heavy earthworks on the escarpment beyond the river are proceeding, but because of the difficult rock sections encountered the programme is somewhat behind schedule. Here the line will drop 1,000 ft. in approximately 12 miles.

Crossing Lake George Swamp

The construction of the earth embankment across the four-mile Lake George swamp crossing is in progress. This causeway will shorten the distance by some eight miles and obviate the construction of many bridges. A gap of 7,000 ft. remains between the two bankheads being built out into the swamp. When the work is completed, over 18,000,000 cu. ft. of earth will have been used to form the embankment, which is of an average depth of 16 ft. The last section of earthworks into Kasese Station, on the far side of the swamp, is relatively light.

The main construction works remaining are the completion of the heavy cuttings and banks on a 10-mile section of the escarpment, and bridging. A large arch culvert is under construction in the gorge of the Dura river; when this is completed the river flow will be diverted through the culvert to cascade over a 30 ft. rock wall at the end into the river below.

In the Lake George swamp two

major bridges are at present under construction. They are being built on the made-up earth embankment, by means of large concrete cylinders sunk into the ground. The cylinders are built hollow in the centre, and the earth inside excavated by a mechanical grab, the cylinders sinking under their own weight into the excavated hole. When firm bottom is reached, a concrete cap and girder seating will be completed on top of the cylinders, and in due course 60 ft.-long steel plate girders launched into position. The girders are being fabricated in the United Kingdom and will be shipped out in the near future. The

transport of these girders by rail to the bridge sites will be a problem of its own, and final site work on each girder will necessitate placing thousands of rivets. In the meantime station buildings and staff quarters along the line are being built.

The construction of this line began in 1952, with the building of the 45-mile section to Mityana, followed in early 1953 by the start of construction beyond Mityana. The line to Mityana was then opened to public traffic on August 1, 1953, and has since carried an increasing volume of goods and passengers. Our November 6, 1953, issue contained a description of the progress of the work to that date. When the railway is opened in 1955 to railhead at Kasese Station, the terminus will be nearly 1,000 miles from Mombasa.

Recovery of Bridge from Closed Branch Line

(Continued from page 406)

balls were fed into the race at the trestle and south abutment as the others rolled clear, more being kept in use initially at the trestle than at the abutment.

When the ends of the girders were about to clear the trestle they were jacked up and the remaining balls under them removed, so that the whole weight lay on the south abutment and the sleeper crib. Rolling then continued until the girders were in a position for loading by cranes.

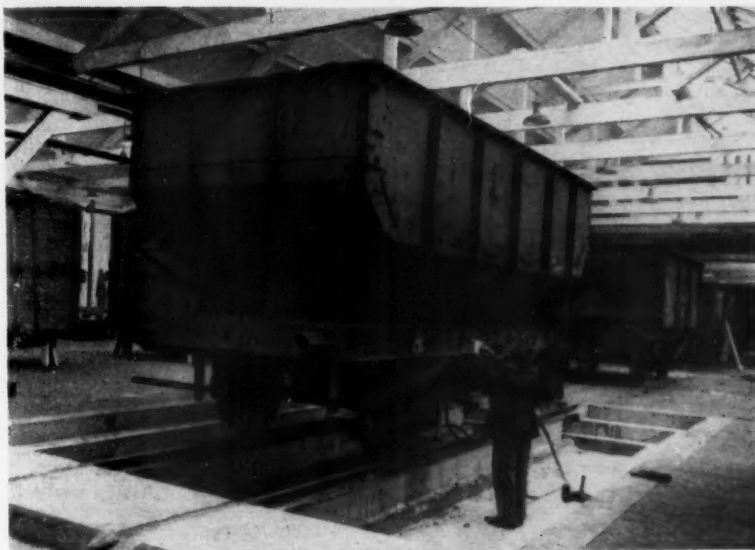
The operation was completed without incident, the whole of the work being under the general direction of Mr. A. Dean, Civil Engineer to the Region.



Earth fill being dumped into the Lake George swamp to form embankment; wagons are run out on decauville track laid on barrels

Prevention of Corrosion in Steel Wagons

Special equipment for de-scaling installed in works of the Eastern and North Eastern Regions



De-scaling hopper wagons on the special pit at Doncaster

DURING recent years much attention has been given by British Railways to the problems arising in the maintenance of the all-steel wagons which are replacing the older wooden-frame stock. The problems relate particularly to the subject of corrosion and its prevention. In each of the Regions, carriage and wagon repair works and wagon repair works have brought into operation schemes for

de-scaling and protective painting. A recognised scraping and painting period of five years has been established, and this, with the use of the latest pneumatic and electric de-scaling tools and brushes, has helped to reduce the time the wagon stock is out of commission.

The accessibility of the underframe is a factor which places a limit on the effective use of de-scaling tools. Steel-

frame wagons with timber floors present little difficulty, as access to the underframe is afforded by the removal of the floorboards. In the case of all-steel wagons, the steel floors are integral with its frame, and other means are necessary to facilitate anti-corrosion maintenance work on the underframe and sheeting.

To overcome this problem, special equipment has been installed in the Eastern and North Eastern Regions under the direction of Mr. L. Reeves, Carriage & Wagon Engineer, Doncaster. These take the form of specially designed pits and devices, to enable the wagons to be angled or tilted.

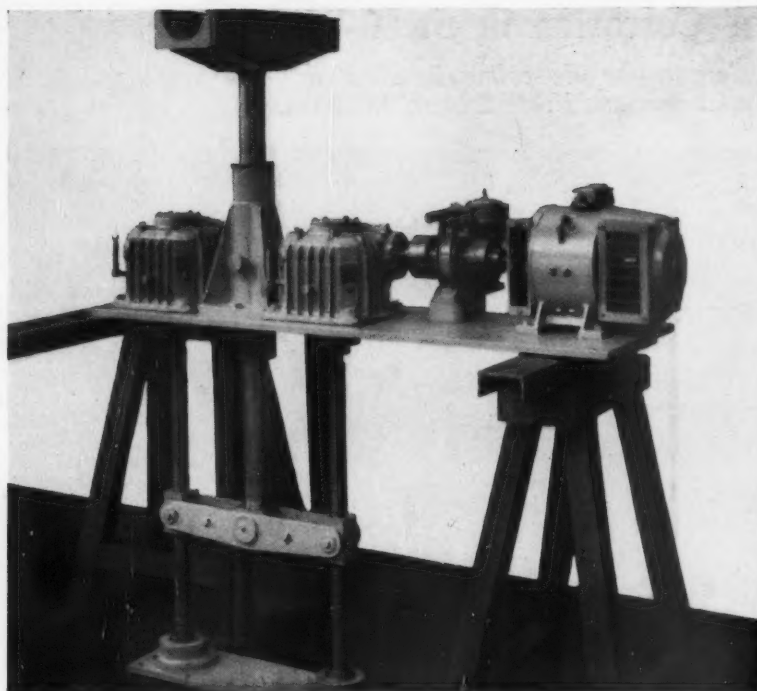
Tilting Unit at Dukinfield

A tilting unit has been installed at the Wagon Repair Works, Dukinfield, which lifts one side of the wagon, and pivots it on the wheels of the opposite sides. The wagon, within its own centre of gravity, comes to rest on the tilt lifting beam, which is set at a predetermined angle. The unit employs a 2-ton winch, from which a single rope passes over fixed pulleys and through a lifting block which is connected to a buffing arm.

This arrangement eliminates snatching and produces a constant lifting force on the side of the wagon, at the same time maintaining a constant clearance between the lifting hooks and the wagon side throughout the tilting operation. The winch and lifting gear are mounted on a gantry. A limit switch



(Left) Side tilting equipment at Dukinfield Wagon Repair Works; (right) end tilting at York Carriage & Wagon Works, using the mechanically operated under-floor unit



Lifting unit installed at York, showing beam, yoke, reduction units, and motor; the operating mechanism is located below floor level

cuts out the winch when the maximum height is reached.

The tilting angle is controlled by limit switches fixed on the tilt-limiting beam. This combined arrangement of switches ensures that over-winding or over-tilting cannot occur. Fulcrum plates are provided so that the wheels about which the wagon tilts, will move easily sideways over the rail without sticking or slipping, and so prevent an induced bending moment on the axle. The plates are fitted with side checks, and are fixed equi-distant from the gantry on either side.

The unit is designed to deal with all

types and sizes of all-steel open wagons. The equipment is sited at the commencing stages of the wagon scraping and painting layout. The use of the unit ensures that all parts of the wagon underframe are readily accessible, and that a wagon can be completely de-scaled and painted with one tilting operation.

De-Scaling Hopper Wagons

The use of inclined planes is one of the principal features in the design of all-steel hopper wagons. These vehicles can, therefore, be de-scaled more efficiently over a pit, there being no

need to provide any tilting facilities. A specially designed pit has been installed at Doncaster Wagon Repair Works, Eastern Region, which enables the operators effectively to de-scale all parts of the gears and underframe.

The pit is stepped at the sides allowing freedom of movement for the operation of de-scaling tools and painting. The higher sections of the hopper wagon sides are dealt with at subsequent stages when the wagon passes from the pit. These employ movable staging from which the operators complete the de-scaling and painting of the body.

Mechanical Lifting Unit

A mechanical lifting unit has been installed at the York Carriage & Wagon Works which applies a force under one axle and lifts one end of the wagon to a pre-selected height. The mechanism allows access to 50 per cent of the underframe and gear which is de-scaled and painted, after which the wagon is lowered and moves forward until the rear axle comes into line over the lifting unit.

The lifting operation is repeated and the remaining half of its underframe is dealt with. While the underframe is being de-scaled and painted, the wagon body at the lower end is also de-scaled and painted, so that the wagon on leaving the lifting unit has been completely de-scaled and painted.

The lifting unit is particularly useful where the distance between repair roads is restricted and only limited head room is available. It is easily accommodated between the track and is placed below floor level, allowing the wagons to pass over on a progress layout.

The design of the unit embodies a lifting beam on a column, which is connected to a yoke, carrying nuts driven by two screws. The drive is through reduction units directly coupled to a 7½-h.p. motor. An electro-mechanical brake, with two switches, for high or low lift, is fitted to the unit as a safety precaution.

WIRE NETTING PLACED ON TRACK.—Two eight-year-old boys are reported to have admitted at Ipswich juvenile court that they had placed wire netting on the track of the Ipswich—Felixstowe branch of the Eastern Region. The wire had almost caused a derailment. Both boys said in court that they wanted to be engine drivers. They were told to "put yourself in the shoes of this engine driver," and then discharged on payment of 4s. costs each.

FIRST AID AWARDS IN THE NORTH EASTERN REGION.—Awards to four employees of the North Eastern Region of British Railways for efficient first aid were made at the Regional headquarters at York on September 27, by the Chief Regional Manager, Mr. H. A. Short. One award was to Mr. W. Holladay, a passenger guard, who had given first aid to the driver of his train, whose legs were both fractured through a burst steam pipe when running between Bradford and Ilkley. Mr. A. P. Hunter, Divisional Operating Super-

intendent; Mr. F. H. Petty, Motive Power Superintendent; Mr. W. O. Reynolds, District Operating Superintendent, Leeds; and Mr. G. C. Gold, Assistant Mechanical & Electrical Engineer, Doncaster, also congratulated the four recipients of awards on their excellent work.

RAILWAY BENEVOLENT INSTITUTION.—The report of the Railway Benevolent Institution for the year ended April 30, 1954, shows that 6,806 persons were assisted during the year at a cost of £58,022. Aggregate assistance rendered by the Institution now totals some £4,296,000. Income, apart from the Derby Orphanage, amounted to £75,459, compared with £74,081 for 1952-53; the increase of £1,378 includes a decrease of £530 under the head of donations, accounted for by a reduction in the amount received as a result of the flag day in August, 1953. Receipts of St. Christopher's Railway Orphanage, Derby, were £25,350, an increase of £960 over the preceding year;

expenditure rose by £954, resulting in a deficit of £368. The income and expenditure account of the Institution, including the orphanage and the home for old people at Dorking, shows total income for 1953-54 as £100,809, with a balance of £7,599.

RAPID ERECTION OF OVERLINE FOOTBRIDGE.—Twenty-five territorials of the New Zealand 1st Field Squadron recently erected a 150-ft. length of Callender-Hamilton bridging in 16 hr. to form a footbridge over the New Zealand Government Railways main line at Te Ku'i, 100 miles south of Auckland. Only 25 men were needed to assemble and erect the bridge, which consists of two spans, one of 50 and the other of 100 ft. The Railways Department enlisted the aid of the territorials to assemble and erect the standard unit construction parts, imported from Great Britain. The standard sections were assembled on site and the completed spans lifted into position by cranes.

RAILWAY NEWS SECTION

PERSONAL

Mr. E. W. I. Arkle and Mr. B. X. Jessop have retired from the board of Northern General Transport Co. Ltd. They have been succeeded as Directors of the Company by Mr. F. Grundy and Mr. A. R. Dunbar.

We regret to record the death in Wellington, at the age of 54, of Mr. Kenneth Alexander Wallace, Commercial Manager of New Zealand Government Railways from 1948 until his retirement, for reasons of ill-health, in 1950. Mr. Wallace was well known in commercial and business circles throughout New Zealand, particularly in the Auckland district. He joined the Railways Department in 1915, as a cadet in the traffic branch at Auckland in 1925 to serve first in the Divisional Superintendent's office and later in the District Traffic Manager's office. He was then appointed Commercial Agent at Auckland and retained this position until his transfer to Wellington in 1945, as Assistant Commercial Manager. In 1948, he succeeded Mr. H. A. Steers as Commercial Manager. Mr. Wallace represented the Railways Department at all sittings of the Rail-Sea Committee set up by the Government in 1944, to investigate sea and rail competition throughout New Zealand, and, in 1949, he gave lengthy evidence on behalf of the Department before the local Government Commission. In 1949, he represented New Zealand Railways at the conference of Australian and New Zealand railway officers in Melbourne.

Mr. D. H. Smith, B.Sc.(Eng.), A.M.I.E.E., has joined the Brush Electrical Engineering Co. Ltd., a member of the Brush Group, as Chief Engineer of the Transformer Division.

On November 11 this year Mr. Arthur Deakin is due to retire from the office of General Secretary of the Transport & General Workers Union under the 65 age limit. He succeeded the late Mr. Ernest Bevin shortly after the 1939-45 war, although he had been acting in that capacity since 1940.

The following have been appointed to the board of Davey, Pexman & Co. Ltd.:

Mr. L. L. Bott, General Works Manager, Mr. A. G. Howe, Chief Engineer, Mr. T. L. Kendall, Sales Director of Ruston & Hornsby Limited.

These appointments took effect from October 1 this year.

C. C. Wakefield & Co. Ltd. announces that, as from October 1, Mr. Leonard M. Broadway took over the position of Managing Director from Mr. Alonzo Limb, who has had to relinquish this office owing to ill-health. Mr. Limb will continue as a Director of the company. The position of Assistant Managing Director will be held by Mr. William F. List.

Sayed Haj Ali Khreino, General Manager of the Jordan Hedjaz Railway, who, as recorded in our October 1 issue, is on a ten-day visit to this country, joined the Jordan Hedjaz Railway during the time of the Turkish Administration on January 1, 1913. When the railway was taken over by the British under Mandate and became the Palestine Railway Mr. Khreino was appointed Head Stationmaster at Haifa. In 1920 he was promoted to be Traffic Inspector,



Sayed Haj Ali Khreino
General Manager,
Jordan Hedjaz Railway

subsequently becoming Senior Inspector. In 1942 he was appointed to be Officer in Charge of the Palestine Railways Training School, where he remained until 1946, the year he was appointed Assistant Commercial Manager, in which position he remained until the end of the Mandate. In 1950 he became Assistant General Manager of the Saudi Arabian Government Railway, but, after a short period of six months, he returned to Jordan to become General Manager of the Jordan-Hedjaz Railway.

We regret to record the recent death at the age of 71 of Mr. Ivar Drolshammer, inventor of the compressed air brake known by his name, which is used in Scandinavia and also in many thousands of freight wagons in Switzerland.

Mr. D. G. W. Acworth, Manager of the Export Department of the General Electric Co. Ltd. and a Director of the Anglo-Argentine General Electric Co. Ltd., has been appointed a Director of each of the

overseas companies of the General Electric Co. Ltd. in Australia, New Zealand, South Africa, Central Africa, India, Pakistan, Burma, Malaya, Hong Kong and Canada.

We regret to record the death, at the age of 58, of Mr. T. Jenkins, Chief Cashier, Ulster Transport Authority.

We regret to record the death on September 15, at the age of 70, of Mr. Ashton Burton Cooper, M.I.E.E., President of Ferranti Electric Limited, Toronto. Mr. Cooper, who was educated at the Somerville Latin School, Somerville, Massachusetts, and Tufts College, Boston, served his apprenticeship with the General Electric Company of America at Schenectady, and the Pearson Engineering Corporation of New York. At the beginning of 1909, he rejoined the General Electric Co. Ltd., as a commercial engineer, and, four years later, became Manager of the Transformer Sales Department of the Canadian General Electric Company. He was appointed General Manager of Ferranti Electric Limited in Toronto in 1923, becoming President in 1942. He was elected to the board of the parent company, Ferranti Limited, in 1947.

Mr. John Edward Richardson, District Commercial Superintendent, York, North Eastern Region, British Railways, retired on October 2.

The following changes in the organisation of the Department of the Operating Manager (Railways), London Transport Executive, have been announced:—

Mr. C. Yorke, M.Inst.T., now Divisional Superintendent "C"—District & Piccadilly lines—has been appointed Divisional Superintendent "B"—Northern & Northern City lines.

Mr. A. L. Day, M.B.E., A.I.R.S.E., has been appointed Divisional Superintendent "C"—District & Piccadilly lines.

Mr. B. W. Burnett has been appointed Assistant Secretary of Associated Electrical Industries Limited.

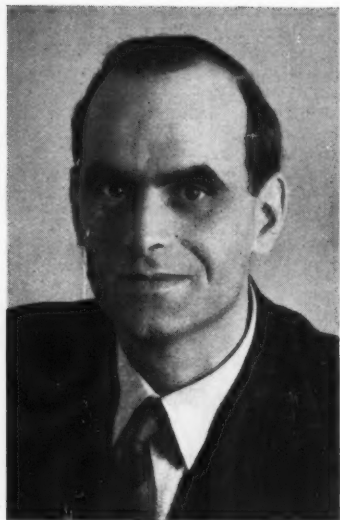
The following changes have been announced by Dowding & Mills Limited:—

Mr. Peter Hollings, Assistant to the General Manager at the main Birmingham Works, will take over duties as London Manager of the company, succeeding Mr. W. G. Smith, who becomes Technical Manager of the London Works.

Mr. W. L. Henderson, A.M.I.E.E., M.A.S.E.E., retains the responsibilities of London Sales Manager.

Mr. R. P. F. Todd has been appointed an additional Engineer Representative.

Mr. A. C. Furse-Roberts has been appointed Secretary of the A.P.V. Co. Ltd. in succession to Mr. H. C. Baigent. Mr. Baigent, who has been secretary for nearly 32 years, has resigned, but will continue as full-time executive in the capacity of Financial Director.



Mr. R. M. L. Lemon

Acting Chief Assistant to the General Manager, E.A.R. & H.



Mr. A. E. Fairhead

Appointed Assistant Divisional Motive Power Superintendent, Crewe, L. M. Region



Mr. R. D. Gardiner

Appointed Assistant Divisional Motive Power Superintendent, Derby, L.M. Region

Mr. R. M. L. Lemon, B.A. Hons. (Oxon.), Chief Establishment Officer, East African Railways & Harbours, who, as recorded in our September 24 issue, has assumed the duties of Acting Chief Assistant to the General Manager in the absence of Mr. G. P. G. Mackay, was educated at Malvern College and Balliol College, Oxford. He obtained his early transport experience with Pickfords Limited, Hay's Wharf Cartage Co. Ltd., and the London Passenger Transport Board. He joined the Great Western Railway in 1938 and underwent a three-year course of special training in the Traffic Department, serving in various traffic divisions and at headquarters at Paddington. From 1940 to 1946 Mr. Lemon served with the Royal Engineers (Transportation); from 1943 to 1945 he was attached to the Railway Board, Government of India, and, in 1946, he was transferred to the Transport Division of the Control Commission for Germany, in the capacity of Deputy Controller (Operating) for the railways in the British Zone. He was demobilised in May, 1946, with the rank of Lt.-Colonel, and rejoined the G.W.R. later in the same year. In 1950 Mr. Lemon was appointed Administrative Assistant to the General Manager, East African Railways & Harbours. He became Chief Establishment Officer in 1952.

Mr. A. E. Fairhead, Assistant (Maintenance) to the Divisional Motive Power Superintendent, Crewe, London Midland Region British Railways, who has been appointed Assistant Divisional Motive Power Superintendent, Crewe, entered railway service in April, 1922, as a premium apprentice and pupil in the Crewe Locomotive Works. He served as an Improver in the Motive Power Departments at Nottingham and Derby, and was appointed Running Shed Foreman at Chester in 1933 and at Northampton in 1935. In January, 1940, Mr. Fairhead joined the Royal Engineers and served with the Railway Operating Company of the Royal Engineers in Persia and Italy, until demobilisation with the rank of Lt.-Colonel in December, 1945. He was mentioned in despatches and awarded the O.B.E. (Military Division) early in 1945. After demobilisation he took up an appointment as Head Office Inspector in the Divisional Operating Superintendent's Department at Derby.

Early in 1946, Mr. Fairhead became Assistant District Locomotive Superintendent at Rugby, and, in May, 1948, Assistant (Maintenance) to the Divisional Motive Power Superintendent at Crewe.

Mr. Andrew Earley has been appointed Chief Ports Manager, East African Railways & Harbours. He succeeds Captain C. W. Hamley, O.B.E., R.N.(Retd.), who is retiring this month.

Mr. W. J. Bird has been appointed Deputy Sales Manager of the General Electric Co. Ltd. He assumes this position in addition to his present duties as Sales Manager of the London & Southern England area.

Associated Electrical Industries Limited announces the following appointments, to take effect from October 11, 1954:—

Dr. I. R. Cox, D.S.O., Managing Director of Metropolitan-Vickers Electrical Co. Ltd., will become Group Managing Director of the A.E.I. Overseas group.

Dr. C. Dannatt, O.B.E., M.C., Deputy Managing Director of Metropolitan-Vickers Electrical Co. Ltd., becomes Group Managing Director of the Metropolitan-Vickers group of companies.

Mr. E. H. Ball, Managing Director of the British Thomson-Houston Co. Ltd., has been appointed Group Managing Director of the British Thomson-Houston group of companies.

Mr. A. N. E. McHaffie, Financial Controller, A.E.I., will become Group Managing Director of the Ediswan-Hotpoint group of companies.

Mr. G. A. Cheetham will become a Director of Metropolitan-Vickers Electrical Co. Ltd.

Mr. D. Q. Holland, Assistant to Controller, A.E.I., has been appointed Chief Accountant of A.E.I.

Dr. Cox and Mr. Ball are already Directors of A.E.I. Dr. Dannatt and Mr. McHaffie joined the board of A.E.I. on October 1, 1954.

Mr. J. Price, Senior Assistant in the Civil Engineer's Office, York, North Eastern Region, British Railways, was elected an associate member of the Institution of Civil Engineers on September 21, 1954.

Mr. R. D. Gardiner, M.B.E. Loco.E., who has been appointed Assistant Divisional Motive Power Superintendent, Derby, London Midland Region, British Railways, was a premium apprentice in the Stratford Workshops of the former L.N.E.R. from 1928 until 1933, including nearly a year in the Electrical Engineers' Department at March, Norton Folgate and Parkstone Quay. He received subsequent supervisory experience in the Motive Power Department at Norwich, Neasden, Boston, and Wigan, and was appointed in charge of Southend Depot in 1937. In May, 1940, Mr. Gardiner joined the Corps of Royal Engineers and was commissioned in March, 1941. After serving several months in the War Office, he was drafted overseas in November, 1941, and served in Persia, Lebanon, Sicily and Italy until demobilised in 1946, with the rank of Lt.-Colonel. He was awarded the M.B.E. in 1945, and twice mentioned in despatches in 1943 and 1945. After war service, Mr. Gardiner resumed as Locomotive Shedmaster at Colchester and was appointed Locomotive Shedmaster, Cambridge, in 1947, and Assistant District Motive Power Superintendent Cambridge, in 1948. He was Acting District Motive Power Superintendent, Plaistow, from February to June, 1949, and Acting District Motive Power Superintendent, Cambridge, from February, 1953, until September of the same year. From February, 1954, Mr. Gardiner was engaged in special duties in the Eastern Region Motive Power Superintendent's Office, Liverpool, until his appointment at Derby, in June, 1954. He holds a commission as Lt.-Colonel in the Army Emergency Reserve (Royal Engineers).

The Scottish Region of British Railways announces the undermentioned appointments:—

Mr. G. H. K. Lund, Assistant District Motive Power Superintendent, Aberdeen, to be Assistant District Motive Power Superintendent, Edinburgh, with effect from October 4, 1954.

Mr. D. M. Whitbread, Shedmaster, Motive Power Department, St. Margarets (Edinburgh), to be Assistant District Motive Power Superintendent, Thornton, with effect from October 4, 1954.

All-Purpose Ships for Clyde Services

Improved transits for cargo and road vehicles afforded by British Railways vessels building and already in service

The £1,250,000 programme of modernisation of British Railways, Scottish Region, Clyde fleet reached its final stage on September 28, when the dual-purpose mv. *Bute* was launched from the yard of the Ailsa Shipbuilding Co. Ltd., Troon. The new ship was named by Mrs. Allen, wife of Mr. W. P. Allen, Chief of Establishment & Staff, British Transport Commission.

Already, under this programme, four passenger and two dual-purpose vessels have been launched. The *Bute* is the last of the three dual-purpose vessels designed for all-the-year-round service, and the second to be built at the Troon shipyard.

The new vessel has an overall length of 185 ft. 6 in. and breadth of 35 ft. The gross tonnage will be 650 and speed 15 knots.

The passenger complement will be 450. Amenities will include lounges, tearooms, and refreshment bars. The main deck will provide covered accommodation for cargo and approximately 20 motor cars, according to size.

An electrically operated lift 33 ft. broad and 20 ft. long will raise or lower road vehicles between pier and main deck levels at all stages of the tide, whilst turntables on the lift platform and at the forward end of the car deck will facilitate stowage. The lift will also be capable of taking a bus 30 ft. long × 8 ft. broad × 9 ft. 6 in. high.

The vessel is twin screw, the main propelling machinery consisting of two British Polar Atlas diesel engines.

Successful Design

The dual-purpose vessel represents a departure from traditional design for the Clyde coast services. The design has been completely successful and since January 4, 1954, when the first dual-purpose ship began service between Gourock and Dunoon until September 27, 21,000 road vehicles have been carried on this service. On July 31, the *Cowal* carried the record number of 292 in one day; the same day the *Arran* also created a record by ferrying 192 cars between Ardrossan and Arran.

Mr. W. P. Allen, in a speech after the launching ceremony, paid a tribute to Mr. T. F. Cameron, Chief Regional Manager of the Scottish Region, and his officers for their decision to build this new type of vessel. Experience on the Gourock-Dunoon service, he said, had shown that the new dual-purpose ships had met with approval and been outstandingly successful. This service was being extended.

The introduction of the new service, he added, helped to knit closer together the industrial area of lowland Scotland and the relatively scattered communities of the Clyde estuary. In expressing the hope that the *Bute* would still further this worthwhile task, so important for the proper balance of our economic life, Mr. Allen said thanks were due to the builders and their craftsmen, and particularly for their co-operation with the officers of British Railways, to ensure, that though new in conception, the new ship was worthy of the great traditions set by railway ships that had plied through the years in the Firth of Clyde.

Others present at the launch included: Messrs. T. F. Cameron, J. L. Harrington, Chief Officer (Marine & Administration), British Transport Commission, Mr. J. D.

Latta, Chairman of the Ailsa Shipbuilding Co. Ltd., and Baillie J. C. McCallum, of the Rothesay Harbour Trust.

New Wemyss Bay—Rothesay Service

The *Cowal*, a sister ship to the *Bute*, on October 1 started a regular daily service for passengers, cargo, vehicles and livestock between Wemyss Bay and Rothesay.

The Secretary of State for Scotland, Mr. Thomas Johnston, performed the ceremony of cutting the tape on arrival of the *Cowal* at Rothesay on the noon sailing from Wemyss Bay. The official party included Mr. T. F. Cameron and representatives of local authorities and of the three motoring organisations.

Hitherto only a few cars, depending on the tide, could be conveyed between Wemyss Bay and Rothesay and the only alternative for motorists from Glasgow was to make the long journey via Arrochar, Glendaruel, and the small ferry across the Kyles of Bute, a distance of about 100

miles. The road distance from Glasgow to Wemyss Bay is only 31 miles and the crossing to Rothesay occupies 30 min.

Rates for Road Vehicles Reduced

With the inauguration of the new service, considerable reductions have been made in the rates for the conveyance of cars and other vehicles; for example, the new single journey rate of 22s. for a 12-h.p. car compares with the former rate of 42s. 7d. for a car of 15-20 cwt. Circular tour tickets enable motorists to travel from Wemyss Bay to Rothesay and return from Dunoon to Gourock or vice versa. It is expected that motor traffic will develop as a result of the facilities.

With the introduction of the new general-purpose service to Rothesay, the Clyde & Campbelltown Shipping Company's cargo service between Glasgow Kingston Dock and Rothesay is discontinued. Ample cargo facilities are provided on the dual-purpose ship and the routing of all cargo via Wemyss Bay affords improved transit. All traffic formerly handled at Kingston Dock is dealt with at College Goods Station, which has a daily rail service to and from Wemyss Bay in connection with the Rothesay ferry vessel.

Floodlighting Narrow Platform Extensions

Projectors mounted on posts 30 ft. above platforms of Southern Region stations

The platform extensions built to accommodate 10-car electric suburban trains of the Southern Region are too narrow for centrally positioned lighting standards. Mazda 500-W. tungsten floodlighting projectors have been supplied. Based on the Mazda "22" floodlight projector, the floodlight has an internal louver developed by the British Thomson-Houston Co. Ltd. research laboratory, mounted behind a horizontally reeded diffuser glass which gives controlled distribution of light over the platform, without, it is claimed, undue spillage of light into zones where it might dazzle train crews.

Installations of the new fittings have been completed at Charing Cross, New Cross, and some other stations. In each case projectors are mounted at approximately 30 ft. above the platform, either one or two at each end of the extension, according to its length.

As an example, at New Cross a platform extension some 240 ft. long has a lighting installation consisting of four 500-W. projectors, two at either end. A very even level of illumination has been obtained.

British Railways staff planned the scheme with B.T.H. lighting engineers and carried out their own installation work.



Day and night views at New Cross, showing two floodlight projectors on concrete pole, absence of dazzle, and good visibility of signal lights

Proposed New Fares Structure in Northern Ireland

*Submissions by Ulster Transport
Authority to Transport Tribunal*

The case of the Ulster Transport Authority for a new passenger fares structure opened before the Northern Ireland Transport Tribunal in Belfast on September 26. Mr. C. A. Nicholson, for the U.T.A., said that the proposals for new fares, although embodying increases made last June, aimed at distributing the burden of charges more equitably rather than increasing revenue.

The U.T.A. is asking the tribunal for maximum charges, but proposes also a "chargeable" rate of five per cent less, which will come into force on a date fixed by the tribunal. The "ceiling" proposals are for a standard rate of 2-2313d. a mile for third class travel by both rail and road. The return fares sought are: first 20 miles, single fare plus 70 per cent; next 20 miles, single fare plus 60 per cent; remainder of distance, single fare plus 50 per cent.

Mr. Nicholson said that this was the first occasion on which the passenger fares structure had been directly considered by the Tribunal since the setting up of public transport in Northern Ireland in 1935, and the first time that road and rail fares had been dealt with together.

The question of passenger fares had been kept under constant scrutiny by the U.T.A. since it came into being in 1948, and any upward changes that had been made were because of pressing economic circumstances, and were the minimum increases. The duty of the Authority was to provide comprehensive services at reasonable charges, and make the undertaking pay. If these two things were incompatible or incapable of achievement, the Authority submitted, it was because of the increasing burden of taxation.

Losses in 1952 and 1953

Mr. Nicholson said that in the last full year for which figures were available (that ending on September 30, 1953) the overall loss sustained by the Authority was £252,000, compared with £470,000 in the previous year. The present proposals, based on the position at June 30, 1954, would result in an estimated loss of £65,000.

Costs had increased by £1,500,000 between 1948 and 1953, but increased revenue attributable to higher charges was only £690,000, a difference of about £900,000. This was taken up by economies, without which the loss in 1953 would have been close on £1,125,000 instead of about £250,000.

The main headings under which these economies were effected were (i) the new freight fares structure approved by the Tribunal last year, which had been a great success; (ii) closing of branch lines; (iii) reorganisation of staff; (iv) dieselisation.

In a recent examination it had emerged that there was a lack of uniformity between road and rail fares, and that the ordinary passenger was being asked to bear too high a burden in comparison with privilege ticket holders.

Season Ticket Travel

The percentage of travel by season ticket in Northern Ireland was extremely high, continued Mr. Nicholson. In 1953, on a passenger mile basis, it was approximately equal to the percentage of travel by ordinary ticket. For the year ending September 30, 1953, ordinary passengers were paying more than twice as much per passenger mile as the average season ticket passenger.

The contribution to revenue from ordinary fares was 70 per cent of the whole, and the contribution from the privilege fares 30 per cent. The present proposals envisaged that ordinary road passengers would contribute 65 per cent to the revenue, and privilege passengers 35 per cent. On the rail side, instead of ordinary passengers paying 74 per cent they would pay 68 per cent and season ticket-holders would pay 32 per cent, instead of 26 per cent.

It was proposed to increase the two-thirds rate at present applicable to women season ticket-holders to five-sixths, which would save £40,000. In the workmen's tickets, there was a proposed average increase of nine per cent, which would save £6,000.

Abolition of Second Class

The Authority proposed to abolish second class travel by rail, which would effect a saving of £1,500. Children would travel with the same concession as before. Mr. Nicholson said that if privilege travel were abolished the Authority would be content to take a uniform charge of 1-3d. per mile, with a minimum fare of 2d. This demonstrated the remarkable impact of privilege travel on a fares structure, but it was impracticable to abolish it.

Had it not been for rising costs and increases in salary, the Authority would have been solvent and making money. Provided there was not another setback it looked as if they might emerge from the gloomy years since 1948, but strong control and direction was still required to keep the undertaking going in the right direction.

Mr. A. Morrison, Chief Officer, Special Duties, U.T.A., said that the ultimate effect of the new proposals would be to encourage short-distance travel in particular. The minimum charge of 3d. single and 6d. return "smothered" much traffic. By reducing the minimum to 2d. single and 4d. return there should be an increase in the amount of travel, and ultimately in the profits. It was also hoped to encourage long-distance travel.

At a subsequent sitting, on September 29, Mr. R. Carlisle, Assistant Chief Officer, Special Duties, U.T.A., said that it was difficult to understand why the concession rate season tickets available to women had ever been granted; probably it had been done at a time when women's earnings were low. From a transport point of view there was no justification for continuing it, and the reduction of the concession proposed should yield about £6,000 on the railways. The continuance of workmen's third class fares was likewise unjustified, but to avoid undue hardship it was proposed to withdraw them gradually. On both the railways and the buses the season ticket travellers, including workmen, were not contributing an equitable share of the gross revenue and it was sought through the new fares structure to obtain a greater proportion of revenue from this class of passenger.

Equation of Rail and Road Fares

Mr. Carlisle told the Tribunal that the Authority proposed that road mileage rates should apply also to rail travel, and that the rail fare should not exceed the charge by road for journeys common to both services. To this end, any railway station not more than half-a-mile from a bus route

would be considered to be common with the nearest bus stop.

It was proposed that first class travel should be charged at 50 per cent above the third class rate and that the second class should be withdrawn. Assuming that all second class passengers on the Northern Counties section of the railway would transfer to third class, the estimated reduction in gross receipts would be about £1,000 a year. On the other hand the withdrawal of second class accommodation would save about £2,000 worth of fuel.

The hearing was continued.

Alterations at Cromer Beach

In connection with the closing of Cromer High Station to passenger traffic at the end of the summer timetable on September 20, a considerable re-arrangement of Cromer Beach Station and its rail approach had to be carried out. The platform was lengthened to accommodate the longer trains in future using this station and the entire layout re-signalled.

The signalling to the goods and carriage sidings has been considerably simplified. New bracket signals were provided for the down home and up platform starting signals, with 14 new ground shunt signals. All facing point locking bars were dispensed with, and 12 new track circuits provided. Point and plunger levers were locked by the track circuits, a total of 22 electric lever locks being provided for these and for the running signals. It was necessary to enlarge the lever frame from 29 to 35 levers and to re-lock the frame.

The whole of the work had to be carried out in a comparatively short time during the incident of summer traffic, and was successfully completed on September 19 without interference with traffic working.

Inspection of New Beyer-Garratt Design for Rhodesia Railways

On September 30, an inspection was made of the class "20" 4-8-2 + 2-8-4 Beyer-Garratt locomotives being built for Rhodesia Railways at the Gorton works of Beyer Peacock & Co. Ltd. At the invitation of Mr. Harold Wilmot, C.B.E., Chairman, and the directors of the company, a party travelled from Euston in special coaches attached to the 8.30 a.m. train, and returned in the evening.

Mr. Wilmot welcomed those present and in particular Sir Gilbert Rennie, the first High Commissioner for the new Federation of Rhodesia & Nyasaland, and Sir Arthur Griffin, lately Chairman of the Transport Commission, and referred to the company's long association with the Rhodesia Railways. He remarked that the first Beyer-Garratt locomotive was supplied to Rhodesia Railways in 1926, designated class "13," and with the delivery of this new class "20" they would have purchased 204 Beyer-Garratt locomotives. In fact, the Beyer-Garratt locomotives represented over 60 per cent of the total tractive effort on the main line.

The Rhodesia Railways had been faced with phenomenal increases in traffic, and he would remind those present that the tonnage hauled increased by 311 per cent between 1928 and the end of 1951. The fact that they were able to meet the traffic requirements at all was largely due to the planning of Sir Arthur Griffin and the Rhodesia authorities to obtain locomotives and wagons. Mr. Wilmot referred to Sir Arthur Griffin's work on the Rhodesia Rail-

ways and how much was owed to his foresight and drive. He also referred to Mr. Oliver Naylor, the London Agent, who had ably taken care of Rhodesia Railways' interests.

Among those present were:—

Captain T. V.-R. Barbour, Office of High Commissioner for Rhodesia; Messrs. J. R. Best, Sierra Leone Government Railway; R. C. Bond, British Transport Commission; D. C. Brown, Crown Agents for Oversea Governments & Administrations; Colonel K. Cantlie, Locomotive Manufacturers' Association; Messrs. S. T. Clayton, British Railways; H. Clark, Peruvian Corporation; K. J. Cook, British Railways; E. S. Cox, British Transport Commission; M. A. Crane, Beyer Peacock & Co. Ltd.; A. Crombie, Rhodesia Railways; J. Crowther, Beyer Peacock & Co. Ltd.; G. R. Curry, Locomotive Manufacturers' Association.

Messrs. L. T. Dawes, Beyer Peacock & Co. Ltd.; R. H. Dobson, Antofagasta (Chili) & Bolivia Railway; A. G. Dunne, Ministry of Supply; T. Eatough, Export Credits Guarantee Department; W. G. Edington, Midland Bank Limited; F. O. Ellis, Rede Ferroviaria do Nordeste; R. E. Fordham, Freeman, Fox & Partners; B. Fowler, Beyer Peacock & Co. Ltd.; Sir Arthur Griffin.

Messrs. E. P. Hackett, Prudential Assurance Co. Ltd.; J. Hadfield, Beyer Peacock & Co. Ltd.; G. T. Hart, Institution of Locomotive Engineers; R. F. Harvey, British Transport Commission; E. J. W. Hellmuth, Midland Bank Limited; A. Henderson, Livesey & Henderson; H. Holden, H. Lane, and J. A. Low, all of Beyer Peacock & Co. Ltd.; W. H. W. Maass, South African Railways; A. J. Maguire, Ministry of Supply; A. G. McLagan, Turnbull Gibson & Co.; A. B. McLeod, British Railways; W. J. Moodie, Mines Trading Co. Ltd.; A. F. Murray, Prudential Assurance Co. Ltd.; O. S. Naylor, Rhodesia Railways; D. Patrick, Beyer Peacock & Co. Ltd.

Sir Gilbert Rennie, High Commissioner, Federation of Rhodesia & Nyasaland; Sir George F. Seel, Crown Agent; Messrs. C. E. R. Sherrington, British Transport Commission; G. S. Simmons, Freeman, Fox & Partners; R. A. Smeddle, British Railways; H. Somerville Smith, Beyer Peacock & Co. Ltd.; G. Horsley Smith, Antofagasta (Chili) & Bolivia Railway; R. K. Smith, International Railway Supply Company; R. M. Sunderland, Beyer Peacock & Co. Ltd.; R. W. Taylor, Crown Agents for Oversea Governments & Administrations; G. Watts, Benguela Railway; W. H. White, Peruvian Corporation; and W. Cyril Williams, Beyer Peacock & Co. Ltd.

"ENGINEERS IN STEEL."—The English Steel Corporation Limited, gave a preview of a documentary film entitled "Engineers in Steel" at the Hyde Park Hotel, London, S.W.1, on September 30. The film depicts the various processes of steel making from melting, ingot casting, and the rolling of heavy mild steel plate. The film also shows the drop stamping of crankshafts, the machining of boiler drums from ingot; and the manufacture of a variety of engineers small tools, such as hack-saw blades, twist drills, taps and so on, besides that of railway rolling stock springs, and the making of cast-steel bogie frames. The film also shows the highly mechanised production of carriage and wagon wheels and tyres at the works of Taylor Bros. & Co. Ltd., Trafford Park, a member of the English Steel Corporation Group of companies. The film, which lasts for 50 min., is in colour, and is being made in five foreign languages; it is available for showing to technical and other institutions.

Institution of Locomotive Engineers' Visit to Birmingham

Tour of the Midland and Saltley Works of the Metropolitan-Cammell Carriage & Wagon Co. Ltd.



At Euston, before departure. (Left to right) Mr. H. S. Turrell, Stationmaster, Euston; Mr. A. E. Robson; Lt.-Colonel Kenneth Cantlie; Mr. G. T. Hart, Secretary; Mr. S. T. Clayton, Motive Power Superintendent, London Midland Region; Mr. H. N. Edwards; Mr. A. Campbell, President; and Miss J. M. Johnson, Assistant Secretary

A successful meeting of the Institution of Locomotive Engineers was held on October 1, when some 300 members and guests were taken on a conducted tour of the Midland and Saltley Works of the Metropolitan-Cammell Carriage & Wagon Co. Ltd. The party was conveyed by special train from Euston. Mr. A. Campbell, President of the Institution, and Mr. H. N. Edwards, Managing Director of the Metropolitan-Cammell Carriage & Wagon Co. Ltd., accompanied the party.

During the journey to Birmingham, the visitors were entertained to luncheon by the directors of the company, and to dinner provided on the return journey. Members and guests who arrived in Birmingham by other means of transport were entertained to luncheon by the directors of the company at the Queens Hotel, Birmingham. Members and guests were met by private buses at Stechford and conveyed to the Midland Works, where guides were provided for a tour of the workshops.

Lightweight Stock

The visitors were able to see in production a varied type of rolling stock both for this country and overseas, which included light-alloy stock for the East African Railways & Harbours, claimed to be the first vehicles of this type to be constructed in the United Kingdom for mainline services on overseas railways. Altogether 34 carriages of various types are being built, and a feature of the design is the extruded light-alloy sections used for the main members of the vehicles including the longitudinals, cantrail, and so on.

Of the 34 light-alloy vehicles to be constructed, 20 will operate on the Kenya-Uganda section, including the twin-unit bogie first-class restaurant car, and the

remaining 14 will operate on the Tanganyika Section. This light-alloy stock will form the subject of a paper to be read before the Institution of Locomotive Engineers on October 20.

Other stock under construction included British Transport Commission standard carriages forming part of an order for 656 coaches of all-steel construction, 40-ton bogie hopper ballast wagons, 16-ton standard type mineral wagons, 15,750 of which are to be built, and rolling stock for overseas railways, among them those of Rhodesia, Pakistan, Egypt, Ceylon and Australia, besides 30-ton hopper wagons for the Steel Company of Wales.

Saltley Works

The party then was conveyed to the Saltley Works, where it was able to see further varied types of rolling stock under construction, also the mechanised production of rolling stock details. As in the Midland Works, welding is used extensively in the construction of rolling stock underframes, which are erected on a progressive system as far as possible in view of the varied type of work in progress.

Besides railway rolling stock, which included 30-ton bogie bolster wagons, and either-side tipping wagons for the British Transport Commission, other stock in various stages of construction included bogie flat wagons, low-side and high-side wagons for the Gold Coast Government Railway & Takoradi Harbour, the Nigerian Railway, and the East African Railways & Harbours respectively, with a first class motor coach for the Cape Western system of the South African Railways & Harbours.

A development arising from prewar experimental work in connection with chassisless road transport vehicles is the Olympic series of integrally constructed single-deck buses, in association with Ley-

land Motors Limited, which supplies the underfloor engines and running units. Visitors were able to inspect a completed vehicle of this type, as well as double-deck buses for service in this country.

Other vehicles of lightweight design which will be constructed by the company include 72 lightweight diesel railcars for which the company received a contract from the British Transport Commission. Also in hand is a contract for 94 diesel-electric locomotives for Coras Iompair Eireann; the mechanical parts for the locomotives are being manufactured in the Midland Works. The London party returned to Euston by special train.

New Station at Carpenders Park, L.M.R.

The new station at Carpenders Park, on the London Midland Region electrified lines between Harrow and Bushey, was opened by Mr. J. W. Watkins, Chief Regional Manager, London Midland Region, on September 27. The Chairman of the Watford Rural District Council, Mr. T. G. Downer, and Alderman A. G. Dillingham, Deputy Mayor of Watford, with other representatives of local authorities and interests, were present.

Acting as booking clerk for the occasion, Mr. J. W. Watkins issued to Mr. Downer the first of a new series of tickets from Carpenders Park to Euston which was numbered 000.

The new station replaces one opened in 1914 as a halt to serve Oxhey golf course, but which with the coming of the St. Mary's housing estate in 1935 and the L.C.C. estate in 1946 became inadequate for increasing traffic. The growth of business at Carpenders Park has been rapid. In 1937, some 200,000 passengers a year used the station; today the figure is well in excess of 3,500,000.

Provision for Platform Extension

Situated centrally in relation to the two housing estates on either side of the line, the station consists of an island platform 450 ft. long, with provision for future extension to 600 ft. At the widest point it is 40 ft., tapering to 20 ft. at the south end. The housing estates on either side of the line have been connected by a 12-ft.

wide subway, from which another subway of the same width serves the island platform.

The station buildings have been designed in accordance with modern practice, using materials easily maintained in a clean and bright condition.

The accommodation consists of a booking hall, ticket and parcels office, with bookstall, tobacco kiosk, waiting rooms and amenities for staff. Provision has also been made for the storage of 200 cycles. The whole of the station buildings are centrally heated.

Work in connection with the new station, apart from one Sunday when engineers were working on the new track, has been carried out with no interruption to traffic.

Some 200 trains each way per day call at the station.

Staff & Labour Matters

Railway Wage Claim

As a result of the request of the A.S.L.E.F. that its claim for improved rates of pay for railway footplate grades should be dealt with through the normal negotiating machinery a meeting took place on September 30 between the Railways Staff Conference, which is the British Transport Commission official negotiating body, and representatives of the A.S.L.E.F. and N.U.R.

At this meeting the A.S.L.E.F. submitted a claim for an increase of 26s. 6d. a week for the top-rated driver, which would make the figure 205s. a week. The N.U.R., which has already reached agreement in direct talks with the Commission representatives on improved rates of pay for grades other than footplate staff, asked for an increase of 16s. 6d. a week for footplate staff, which would bring the maximum to 195s. a week. This would give them an increase of approximately 15 per cent in the rates of pay immediately in force before the interim settlement which operated from December 6, 1953.

The A.S.L.E.F., in demanding a bigger increase than the N.U.R. for drivers, is seeking to widen the differentials in comparison with other grades.

After the meeting on September 30 the

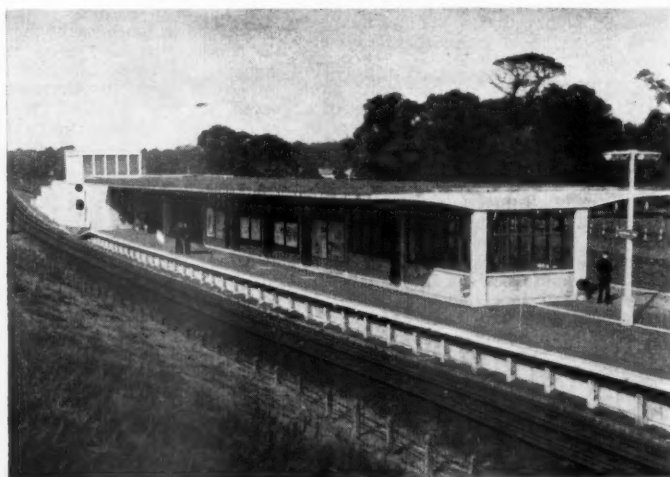
claims proceeded to the next stage in the negotiating machinery, the Railway Staff National Council, a meeting of which took place on October 5. Representatives of the three railway trade unions and of the British Transport Commission sit on the Council. After this meeting it was announced that the claims in respect of footplate grades would be referred to the Railway Staff National Tribunal, the Chairman of which is Sir John Forster, Q.C.

NEW FREIGHT RATES FOR CANADIAN STEEL.

—The Board of Transport Commissioners, Canada, has approved agreed freight charges between the railways and numerous major Ontario steel producers for the haulage of steel products to the Pacific Coast. The steel industry had claimed that the British Columbia market had been lost to foreign competition and that the new low rates would help to regain it.

REMOVING OBSTACLES TO TRAVEL.—At the recent general assembly of the International Union of Travel Organisations, Mr. Peter Thorneycroft, President of the Board of Trade, said that he was certain that without the freedom to travel, true and full international understanding would never be achieved. He was glad to note that through the work of its commissions the Union was helping in the general elimination of visas, passports, restrictive currency arrangements, and frontier formalities.

"ELECTRONICS AT WORK" EXHIBITION.—The Scientific Instrument Manufacturers Association of Great Britain Limited, announces that an exhibition entitled "Electronics at Work," will be held at the Chamber of Commerce Hall, New Street, Birmingham, on November 23, 24 and 25. Free tickets of admission are obtainable from S.I.M.A., 20, Queen Anne Street, London, W.1, and from the Chamber of Commerce, New Street, Birmingham; Birmingham Exchange & Engineering Centre, Stephenson Place, Birmingham; and the City of Birmingham Information Department, Corporation Street, Birmingham. Admission may also be gained on presentation of a trade card. Twenty-two firms are exhibiting.



(Left) Former station at Carpenders Park, on the electrified tracks of the L.M.R. Western Division main line; (right) the new station, with the four steam tracks in background

Contracts & Tenders

Another order for steel rails and other track components has been placed by the British Columbia Government with the United Steel Companies Limited. It amounts to approximately \$1,000,000 and follows an order for a like amount announced in our September 17 issue. The rails are stated to be intended for a 40-mile extension of the Government-owned Pacific Great Eastern Railway from Squamish, the present southern terminus, to North Vancouver.

A contract valued at £7,500,000 for the construction of a harbour at Tema, Gold Coast, has been placed with Parkinson Howard Limited. (This project was referred to in an article in our July 16 issue.)

Trollope & Colls Limited has been awarded the general building contract for the new cargo and passenger centre being provided at Southampton Docks by the British Transport Commission in connection with the Union Castle Line South African mail service.

Maschinenfabrik Augsburg-Nürnberg A.G. has received an order for ten triple-car diesel-hydraulic metre-gauge trains for service on the V.F. Rio Grande do Sul, in Brazil, these being a repeat order of two trains in operation over the last few months. Each train is to have two M.A.N. 400 b.h.p. oil engines and two sets of Voith transmission. Seating capacity is to be 118, service weight 110 tons, and top speed 62 m.p.h.

Ruhrstahl A.G., of Hattingen, Germany, has received from the Mexican National Railways an order for 2,000 solid rolled steel wheels for carriages and wagons.

British Railways, London Midland Region, have placed the following contracts:—

Thomas Holloway (Tipton) Limited, Tipton: staff amenities at Great Bridge Goods Depot. (The contract for this work placed with H. & R. L. James is cancelled.)

Leonard Fairclough Limited, Adlington: general works contract for reconstruction and widening of bridge No. 3 (Hythe Road) on Willesden No. 2 curve, for the Hammersmith Corporation

R. W. Naylor Limited, Birmingham: alterations and extensions to existing staff amenities, offices and stores at the engine shed, Walsall Motive Power Depot

British Railways, Eastern Region, have placed the undermentioned contracts:—

British Thomson-Houston Co. Ltd., London, W.C.2: manufacture, supply, erection, and maintenance of 6.3 kV metal-clad switchgear at Temple Mills Wagon Shops and Marshalling Yard

Metropolitan-Vickers Electrical Co. Ltd., Manchester 17: manufacture and supply of two 500 KVA and two 1,000 KVA transformers and additional equipment for Temple Mills Marshalling Yard; reconstruction of wagon shops

William Sindall Limited, Cambridge: construction of new flash-butt welder building, saw and drill shop and erection of gantry at Chesterton Junction Central Permanent Way Depot

Tersons Limited, London, N.3: renewal of permanent way in the Kings Cross District

George Simpson (London) Limited, London, S.W.1.: reconstruction of roof to engine shed and repairs at Barnsley Motive Power Depot

Hewins & Goodhand Limited, Grimsby: construction of messroom and lavatory accom-

modation for carriage cleaners and motive power staff at Cleethorpes

W. Malthouse Limited, Sheffield, 8: construction of new messroom and lavatory accommodation at Chesterfield (Midland) Goods Depot

Ashwell & Nesbitt Limited, Leicester, replacement pipework for hot water washout plant and installation of pipework and mechanical under-fed stokers for pre-steaming plant at Colwick Motive Power Depot

Craven Bros. (Manchester) Ltd., Stockport, supply and delivery of one quartering machine and additional equipment for Stratford Locomotive Works.

The High Commissioner for India is asking for tenders for crank axles and wheel-axle assemblies. See Official Notices on page 420.

The Special Register Information Service, Export Services Branch, Board of Trade, states that the British Embassy at Lisbon has advised the Branch that, so far as it is aware, there are no calls for tenders in Continental Portugal which debar the direct submission of tenders by foreign firms. It is highly convenient and in many cases almost indispensable for foreign firms to have an agent on the spot, for the purpose of copying tender conditions and specifications when copies are not available, and to avoid difficulties or delays in the signing of documents, affecting provisional deposits, etc. For these purposes the agents should have their principal's power of attorney. If they secure a contract, the firm or its duly accredited representative must "establish a domicile" in Portugal.

According to the Special Register Information Service, Export Services Branch, Board of Trade, the Uruguayan State Railways are calling for tenders for anchors for rails of wide flange, as under:—

Item	Description	Quantity
(a)	70 lb. ASCE type (Plan C-4765)	26,000
(b)	80 lb. CUR type (Plan 13822-3)	126,000
(c)	80 lb. BSR type (Plan 13488-2)	22,000
(d)	80 lb. ASCE type (Plan 14453)	86,000
	Total	260,000

Each anchor should be stamped item (a)—70 ASCE; (b)—80 CUR; (c)—80 BSR; (d)—80 ASCE. A guarantee of \$2,000 is required for maintenance of offers. Tenders should reach the Administración de Ferrocarriles del Estado, Montevideo, by October 28. A copy of the specification may be obtained on loan by United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1). Local representative is essential.

The Director General of Supplies & Disposals, New Delhi, is inviting tenders for 3,375 axlebox bearings for 10 in. x 5 in. journal (b.g.), without white metal insert, and 1,125 axlebox bearings rough machined for 10 in. x 5 in. journal without white metal insert.

Tenders are to be submitted to the Director General of Industries & Supplies, Shahjahan Road (Section SRI), New Delhi, quoting reference SRI/16817-E/1 and will be received up to 10 a.m. on October 15. Forms of tender are only available for purchase in India from the Deputy Director General (Supplies), Directorate General

of Supplies & Disposals, New Delhi; Director of Supplies & Disposals, Bombay or Calcutta; Deputy Director Supplies & Disposals, Madras.

If the date for the receipt of tenders does not allow sufficient time for tenderers to obtain tender forms from India, they may submit their quotation to India in their own letter form or by telegram so long as all essential particulars are given and provided they simultaneously apply for the tender forms and return them duly completed as quickly as possible on the basis of advance quotations already submitted.

A copy of the tender form can be examined at the India Store Department, 32-44, Edgware Road, London, W.2, on application to the "CDN" Branch and the drawing can be seen at the offices of Hodges Bennett & Company, 59-60, Petty France, London, S.W.1, from whom copies may be obtained at a fixed price per sheet.

The Director General of Supplies & Disposals, New Delhi, is inviting tenders for cast iron ballast weights (six lots), 940 in all.

Tenders are to be submitted to the Director General of Industries & Supplies, Shahjahan Road (Section SRI), New Delhi, quoting reference SRI/18848-E/11. They will be received up to 10 a.m. on October 30. Forms of tender are only available for purchase in India from the Deputy Director General (Supplies), Directorate General of Supplies & Disposals, New Delhi; Director of Supplies & Disposals, Bombay or Calcutta; Deputy Director of Supplies & Disposals, Madras.

If the date for the receipt of tenders does not allow sufficient time for tenderers to obtain tender forms from India, they may submit their quotation to India in their own letter form or by telegram so long as all essential particulars are given and provided they simultaneously apply for the tender forms and return them duly completed as quickly as possible on the basis of advance quotations already submitted.

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BRIDGWATER—EDINGTON BRANCH CLOSED.—The Bridgwater to Edington branch of the Western Region, formerly part of the Somerset & Dorset Joint Railway, has been closed to passenger traffic. Edington Junction has been re-named Edington Burtle.

RECORD TOURIST TRAFFIC IN AUGUST.—The British Travel & Holidays Association announces that 128,000 overseas visitors came to Britain in August, an increase of 12 per cent over the total for August in Coronation year. The August total included more than 33,000 visitors from U.S.A., 10 per cent more than in August last year. There were over 9,000 more visitors from Europe, an increase of 15 per cent over August, 1953. The most notable increases were from Austria, the Netherlands and Spain. Arrivals from France and Germany maintained the steady increase they have shown throughout the year. Predicting that 1954 will be a record tourist year, the Association estimates that total earnings from the traffic will amount to £130,000,000.

Notes and News

Accountants Required.—Vacancies exist on the Nigerian Railway for a principal accountant, a cost accountant and an accountant, for tour of 12 to 24 months. See Official Notices on page 420.

Vacancy for Workshop Foreman (Foundry).—A workshop foreman (foundry) is required by the Nigerian Railway for one tour of 12 to 24 months in the first instance. See Official Notices on page 420.

Mechanical Instructors Required.—Applications are invited for the posts of mechanical instructors required by the Nigerian Railway for one tour of 12 to 14 months in the first instance. See Official Notices on page 420.

Assistant Civil Engineer (Junior) Required.—A junior assistant Civil engineer is required by a firm of consulting engineers for work on railway location in West Africa. See Official Notices on page 420.

Assistant Engineer (Permanent Way) Required.—Applications are invited for the post of assistant engineer (permanent way) required in the London Office of the Crown Agents for Oversea Governments and Administrations. See Official Notices on page 420.

Institution of Locomotive Engineers.—On Wednesday, October 20, at 5.30 p.m. a paper will be read before the Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, 1, Birdcage Walk, London, S.W.1, entitled "The design of light alloy coaches for East African Railways," by Mr. J. F. Thring.

Expert Tool & Case Hardening Co. Ltd.—The directors of Expert Tool & Case Hardening Co. Ltd. have declared an interim ordinary dividend of 8 per cent in respect of 1954 (11½ per cent) payable on October 30. The board reports that the effects of its action to increase output, referred to at the last annual meeting, will not be fully operative until 1955; accordingly it has been thought prudent to restrict the interim dividend.

Gas-Generator Tests.—Official tests have now been made of the power-plant built by Götaverken for installation in a locomotive for the Swedish State Railways. This gas-generator comprises a two-stroke opposed-piston engine, the exhaust-gas from which is fed to a gas turbine as the power-propulsion unit. This machinery is shortly to be installed in a 1,000 h.p. 1-C-1 locomotive now under construction by the Motala Verksted.

Depreciation on a Wagon.—Some correspondents have queried the statement by Mr. A. R. G. Saunders, in the third part of his article "A Paradox of Modern Railway Management," in our September 3 issue, that the annual depreciation on a wagon costing £2,000 with a life of 25 years is £55. Mr. Saunders explains that if an asset valued at £2,000 has a life of 25 years, then an annual contribution of £55 to a renewals fund invested at 3½ per cent, will produce £2,000 in 25 years. At the end of that period, on the first assumption, there is no further life in the asset; the fund will amount to £2,000 and there is no residual value in the asset. The figure of £55 a year, he maintains, does repre-

sent the actual cost of physical depreciation. The calculation was derived from "Archer's Tables."

Institute of Transport: Joint Graduate & Student Society.—Approval has been given for the formation of a Dublin & District Graduate & Student Society of the Institute of Transport.

The Institution of Mechanical Engineers.—The annual dinner of the Institution of Mechanical Engineers, will be held at the Dorchester Hotel, Park Lane, W.1., on Thursday, October 14, at 7 for 7.30 p.m.

Institution of Railway Signal Engineers: Annual Dinner and Dance.—The annual dinner and dance of the Institution of Railway Signal Engineers will be held on Friday, October 29, at the Criterion Restaurant, Piccadilly, London, W.1, at 6.15 for 6.45 p.m.

English Electric Co. Ltd. Debenture Stock.—The English Electric Co. Ltd. announces that £31,100, nominal, of its 4 per cent debenture stock has been drawn for redemption at par on November 15. After taking this redemption into account, with sundry purchases amounting to £8,639 stock on the market, the outstanding stock will amount to £748,2434.

Scottish Station Gardens Competition.—In the 1954 competition for the best kept station gardens in the Scottish Region of British Railways, Helensburgh Central and Racks each won Special A awards of £10. Other special class prize winners were Bathgate Upper and North Berwick in Class B (£8). Entries for the competition were received from 270 stations, and smaller awards, first, second and third class, were made to many stations in all parts of Scotland.

Day Tickets in the West Riding.—New experimental cheap day fares have been introduced between many stations in the North Eastern Region in the West Riding of Yorkshire from October 1, and a wide range of cheap single fares at approximately half the day return fare is in operation. Examples of these fares are Brad-

ford Exchange to Leeds Central, 9d. third class (compared with 1s. 6d. ordinary single) and Harrogate to Bradford 2s. (3s. 8d.).

London Transport Services Curtailed through Staff Shortage.—Because of staff shortages at certain garages, and also of an unofficial ban on overtime and voluntary rest day working at those garages, some London Transport Green Line coach services were introduced temporarily on October 3. Each of the services will be restored to its normal timetable as soon as possible.

Bala-Blaenau Festiniog Branch.—In the item "Miles Away" in the Scrap Heap of September 24, it may seem to be implied that Festiniog and Blaenau Festiniog are the same place. It has been pointed out that this is not correct; they are two distinct townships. They were originally spelt Festiniog and Blaenau Festiniog, but the spelling of the latter has been altered in the last few years to Blaenau Ffestiniog at the instigation of the local authority, which holds that that is the correct Welsh spelling.

Electrical Engineer's Exhibition, 1955.—Demands for space at the Electrical Engineer's Exhibition to be held at Earls Court, London, on March 15-19, 1955, are stated to have compelled refusal of function applications. The General Manager of the exhibition, Mr. P. A. Thorogood, now is considering whether as far as the 1956 exhibition is concerned, it will be necessary to suggest that positions be decided by ballot, and also the size of standards. The offices of the exhibition are at 23, Bloomsbury Square, London, W.C.1.

Silentbloc Limited: Chairman's Statement.—In his circulated statement, Mr. B. H. Dulanty, Chairman of Silentbloc Limited, points out that, in spite of severe competition, the trading profit increased by £33,123 to £244,772 for the year ended May 31 last. The total available for appropriation was £112,358. The erection of a factory at Crawley New Town is making satisfactory progress and should



Station garden at St. Andrews, which won a Class C award in the Scottish Region gardens competition this year

be in full operation by the end of the year. Negotiations for the sale of the existing factories are well advanced. Greatly increased research facilities are being provided at the new factory to assist in the development of new products. In the year under review direct exports increased by over 50 per cent. Royalties from the United States increased during the year, and the companies in Canada and Australia are making good progress. Order books at home are being maintained on a satisfactory basis.

Punctuality of Eastern Region London Suburban Services.—A marked improvement over the 1953 figures is shown in the punctuality returns for suburban trains into and out of Kings Cross and Marylebone during the week ended September 25. Between 7 a.m. and 10 a.m. 74 per cent of arrivals at Kings Cross were on time (against 65 per cent for the corresponding week of last year) and 20 per cent (same) 5 min. late or less; the corresponding figures for Marylebone are 87 per cent (67) and 9 per cent (29). Of departures 81 per cent (74) of trains left Kings Cross on time, and 17 per cent (20) 1-5 min. late; the corresponding figures for Marylebone are 88 per cent (85) and 10 per cent (10) during the afternoon peak.

Blaw Knox Exhibits at Olympia.—A wide range of earth-moving and construction equipment will be exhibited at Blaw Knox Limited at the Public Works Exhibition to be held at Olympia, London, on November 15-20. The exhibits will include several of the firm's most recent designs such as its BK Super-12 extra-heavy-duty motor grader which develops 118 b.h.p. at an operating speed of 1,650 r.p.m., and the BK-Fifty excavator with face shovel attachment, and which is easily converted to interchangeable attachments including face or drag shovel, skimmer, dragline, and so on. Other exhibits will include a BK-90 scraper, Rex concrete mixers, and Blawform steel shuttering and its application to walls and other constructions.

Bridge Rebuilding at Kenton.—Because of preliminary engineering work on the rebuilding of the bridge at Kenton carrying the London Transport (Metropolitan) and former Great Central lines over the London Midland Region main line from Euston, electric train services between Harrow & Wealdstone and Wembley Central will be curtailed on Sundays October 10, 17, 24 and 31. Between 12.15 a.m. on the Sunday morning and 4 a.m. on the Monday morning a special half-hourly service of electric trains will operate between Euston and Watford Junction; London Transport Bakerloo Line trains to and from Elephant & Castle will terminate at Wembley Central. Additional electric trains to the special half-hourly service between Euston and Watford Junction will run between Watford Junction and Hatch End to increase train frequency to every 15 min.

Betchworth Station Not to Close.—It has been decided that Betchworth Station, on the Southern Region Redhill-Guildford line, closing of which was under consideration because of a decline in traffic, is not to be closed, at least for the time being. In reply to a petition, Sir John Benstead, Deputy Chairman of the British Transport Commission, has stated that the Chief Regional Manager, Mr. C. P. Hopkins, has completed his inquiries and come to the conclusion that the economies to be obtained by closing the station would be very small and would

probably not make up for the loss of receipts. As far as can be foreseen, this decision is not likely to be reversed in the near future.

L.M.S. Golfing Society Competition.—Mr. J. W. Watkins, Chief Regional Manager, British Railways, London Midland Region, was present at the annual dinner and prize distribution after the L.M.S. (London) Golfing Society Captain's Prize Competition held at the West Herts Club on September 17. The Captain is Mr. R. Simpson, and winner of the competition was Mr. W. M. Donald. Others present at the function were Messrs. G. L. Darbyshire, G. J. Harris, S. G. Hearn, E. S. Hunt, W. Kilkenny, L. W. Noton, and R. A. Riddles.

Road Haulage Association Annual Conference.—The agenda for the Road Haulage Association Annual Conference at Weston-super-Mare next week includes area resolutions advocating reduction of the fuel oil tax, abolition of the purchase tax on commercial road vehicles, abolition (in view of the high price received for British Road Services units) of the road haulage levy at the end of this year, improvements to road tunnels under rivers, and the granting of "A" licences to all vehicles proved to be solely engaged on hire or reward work.

Severance of Rail Communication with Sheppey.—The Kings Ferry road-and-rail bridge, the only bridge between the Isle of Sheppey and the mainland, was put out of action last Sunday after a vessel had collided with it. Damage to the casing made it impossible to drop the lifting span back into position and all road and rail traffic was suspended. A ferry service of small boats was organised to carry people across the river Swale to buses on either side. As we went to press, a special bus service was in operation between Gillingham, terminus of the Southern Region electric services from and to London, and the Swale ferry, and between the Swale ferry and Sheerness, normally the terminus of the branch from Sittingbourne.

G.E.C. Fractional Horsepower Motors.—A new range of fractional horsepower motors which comply with B.S.2048 and are mechanically interchangeable with other makes complying with this specification, has been produced by the General Electric Co. Ltd. Apart from flange-mounted motors, they are also interchangeable with motors made to the American N.E.M.A. Standard. The stator laminations are accurately stacked and riveted under high pressure to ensure maximum rigidity, and the ends spigotted true with the bore for mounting the bearing brackets. A one-piece pressing, screwed to the stator, ensures correct centre height and alignment of the foot-mounted motors. The bearing brackets are pressure cast in aluminium, while the sleeve bearings are steel with whitmetal lining. The squirrel cage motor is cast in aluminium, with ventilating fans integrally cast in the end rings, and is said to be virtually indestructible.

Forthcoming Meetings

Until end of year.—"Popular Carriage" Exhibition (Two centuries of carriage design for road and rail) in the Shareholders' Meeting Room, Euston Station, London, N.W.1. Weekdays 10 a.m. to 7 p.m.; Sundays 2 to 7 p.m.
October 11 (Mon.).—Institute of Transport, at 66, Portland Place, London, W.1, at

5.45 p.m. Presidential address by Sir Gilmour Jenkins.

October 12 (Tue.).—South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, in the Angel Hotel, Westgate Street, Cardiff, at 6.30 p.m. Paper on "Modern Methods of Storekeeping," illustrated by lantern slides, by Mr. H. R. Webb, Stores Superintendent, Western Region, Swindon.

October 13 (Wed.).—Institution of Railway Signal Engineers, York, at the Railway Institute, at 5.30 p.m. Paper on "Testing of interlocking frames," by Mr. W. L. Cartwright.

October 14 (Thur.).—South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, in the Angel Hotel, Westgate Street, Cardiff, at 6.30 p.m. Paper on "The manufacture and uses of cement," illustrated by lantern slides, by Mr. A. M. C. Jenour, Chairman, Aberthaw & Bristol Channel Portland Cement Co. Ltd.

October 15 (Fri.).—Institution of Mechanical Engineers, at 1, Birdcage Walk, Westminster, S.W.1, at 5.30 p.m. Presidential address.

October 15 (Fri.).—Institute of Transport, Tees-side Section, at the Cleveland Scientific & Technical Institution, Middlesbrough, at 7 p.m. Inaugural address by Mr. J. H. Baker, Chairman of the Section.

October 15 (Fri.).—Institute of Transport, York Graduate & Student Society, at the Railway Headquarters, York, at 7 p.m. Discussion on Institute examinations with the examinations officer.

October 16 (Sat.).—British Railways, Southern Region, Lecture & Debating Society. Full day visit to Dover Harbour.

October 18 (Mon.).—Institution of Electrical Engineers, at Savoy Place, London, W.C.2, at 5.30 p.m. Discussion on "Electricity in the future," opened by the President.

October 18 (Mon.).—Historical Model Railway Society, at the headquarters of the Stephenson Locomotive Society, 32, Russell Road, London, W.14, at 7 p.m. Paper on "Railway safety legislation and the lessons of some serious accidents," by Mr. T. S. Lascelles.

October 20 (Wed.).—Permanent Way Institution, London Section, at the headquarters of the British Transport Commission, 222, Marylebone Road, London, N.W.1, at 6.30 p.m. Paper, illustrated by lantern slides, entitled "Automatic train control in Great Britain," by Mr. J. H. Currey.

October 20 (Wed.).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, 1, Birdcage Walk, London, S.W.1, at 5.30 p.m. Paper on "The design of light alloy coaches for East African Railways," by Mr. J. F. Thring.

October 21 (Thur.).—British Railways, Western Region, Lecture & Debating Society, in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m. Young men's discussion.

October 21 (Thur.).—British Railways, North Eastern Region, York Locomotive Society, at the Railway Institute, Queen Street, York, at 6.45 p.m. Paper on "Locomotives and their work on the Southern Region," by Mr. S. C. Townroe, Assistant to the Motive Power Superintendent, Waterloo.

Railway Stock Market

Buying activity in stock markets was less in evidence this week, partly because many City finance houses were conserving resources for the offer of shares in John Summers, the latest of the steel issues. British Funds strengthened, helped by the latest revenue figures, which were regarded as encouraging hopes that, if all goes well in the second half of the financial year, there may be prospects of some reduction in taxation in the next Budget.

There was not much business reported in railway stocks, but Canadian Pacific attracted attention at the somewhat higher level of \$48½ partly on talk of prospects of a bigger dividend. Perhaps, however, the main reason has been rumours of further oil discoveries in the Dominion. Canadian Pacific's 4 per cent non-cumulative preference stock has been firm at £68½ and the 4 per cent debentures £91½. Elsewhere, White Pass no par value shares improved to \$31; the convertible debentures were £110, and the loan stock £33.

There have been fewer dealings in Midland of Western Australia, which was quoted at 24, with the 4½ per cent debentures 90½ and the income stock 42. Emu Bay 5 per cent irredeemable and the 4 per cent debentures were 44½ and 62½ respectively.

In other directions, Nyasaland Railways 3½ per cent debentures were again 79½, and the shares easier at 5s.

Among Indian stocks, Barsi remained at 92½, while West of India Portuguese 5 per cent debentures have changed hands down to 86.

In foreign rails steadiness was shown by Antofagasta ordinary and preference at 8½ and 44½ respectively, while business at 70 was recorded in the 5 per cent (Bolivia) debentures. There was much less attention given to Dorada ordinary stock, though dealings have been recorded at 81; the 6 per cent debentures were 92½.

Costa Rica stock was rather more active around 10½, and the second debentures were dealt in at 53. Brazil Railway bonds were again quoted at 8. Chilean Northern 5 per cent first debentures were 29½, and business at 57½ took place in Guayaquil & Quito 5 per cent first debentures.

Elsewhere, International of Central America no par shares were again quoted at \$14½ with the preferred stock \$105½. Paraguay Central 5 per cent debentures were 20½.

United of Havana second income stock was 35½ and the consolidated stock 5½. Mexican Central "A" debentures strengthened to 74. San Paulo ordinary units were 3s. 6d., Nitrate Rails shares eased to 20s. and Taltal Railway shares were 13s. 6d.

Firmness was maintained in road transport shares with Southdown 35s. 9d., West Riding 35s. 6d. and Lancashire Transport 62s. Ribble Motor were 37s. 6d., Maidstone & District 26s. 3d., and Northern General Transport 28s., while East Kent Road Car shares changed hands at 28s. 9d. Buying of B.E.T. deferred 5s. units around 63s. 9d. was in evidence on talk of a bigger distribution next year.

Despite the competition of the latest steel issue, engineering and kindred shares remained active. A feature was strong buying of Babcock & Wilcox on expectations of good results and a higher dividend, but at 66s. 9d. all the rise in price was not held. Vickers at 40s. also lost part of an earlier gain. T. W. Ward at 55s. have been steadier, awaiting the financial results, while on the possibility of a higher dividend, Guest Keen moved up to 65s. Tube Investments also remained lively around

75s. 6d. in response to hopes of an increased payment. British Aluminium have shown steadiness at 37s. 9d.

Among shares of locomotive builders and engineers, Beyer Peacock were 43s. 9d., Charles Roberts 5s. shares 8s. 10½d., Hurst Nelson 39s. 9d., Birmingham Carriage 27s. 3d. and North British Locomotive 14s. 9d. Vulcan Foundry were 29s. 6d., Gloucester Wagon 10s. shares 18s. 9d. and Wagon Repairs 5s. shares 14s. 4½d. Central Wagon 10s. shares changed hands up to 16s. 6d.

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is exempted from the provisions of the Notification of Vacancies Order, 1952.

QUANTITY SURVEYOR/ESTIMATOR required. Permanent position with accommodation offered to suitably qualified man. Apply to The Eagle Construction Co., Ltd., Scunthorpe, Lincs.

DRAFTSMEN required having general mechanical engineering design experience and/or Railway Rolling Stock experience. Situation Surrey. Pension Scheme. Apply in writing giving age, training and experience to—Andre Rubber Co. Ltd., Kingston-by-Pass, Surbiton, Surrey.

ASSISTANT CIVIL ENGINEER (junior) wanted by Consulting Engineers for work on railway location in West Africa. Applicants should have passed, or be exempt from, sections A & B of the A.M.I.C.E. examination and should preferably have some experience of railway survey and/or construction, overseas. Salary according to qualifications and experience, free furnished quarters or tentage allowance and liberal leave on full pay. Apply by letter with full particulars of age, qualifications and experience, to Box No. 8033, c/o Charles Barker & Sons Ltd., 31, Budge Row, London, E.C.4.

MECHANICAL INSTRUCTORS required by NIGERIAN RAILWAY for one tour of 12/14 months in the first instance. Salary scale (including expatriation pay) £807 rising to £1,115 a year; gratuity at the rate of £100/£150 a year. Outfit allowance £60. Liberal leave on full salary. Free passages for officer and wife. Assistance towards cost of children's passages or grant up to £150 a year for their maintenance in U.K. Candidates should have served an apprenticeship with Locomotive or Carriage and Wagon Builders and have subsequently served as a journeyman for at least three years. They should be able to give practical demonstrations and to lecture on practical elementary engineering, correct use of hand tools and machine tool processes in one of the following fields:—(a) Sheet metal/plating and welding (preferably with boiler shop experience); (b) Carriage body building and wood machining. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in Block letters, full qualifications and experience and quote M2C/30650/RA.

VACANCIES FOR ENGINEERS, SOUTH AFRICAN STATE RAILWAYS. Vacancies for Junior/Assistant Engineers exist in the Civil, Mechanical and Auto Engineering Departments of the South African State Railways, and qualified persons desirous of being considered in connection with the filling thereof must submit their applications, containing full particulars of qualifications held, experience, age, marital status, etc., to the S.A.R. Recruiting Mission, Room 346, South Africa House, Trafalgar Square, London, W.C.2. A degree in civil or mechanical engineering, as the case may be, is required, and applicants must preferably be under 30 years of age. The appointments are graded as follows:— Junior Engineer, £480 x £50—£580 p.a.; Assistant Engineer, £650 x £50—£950 x £40—£1,030; plus cost of living allowance, the present rate being £352 to £110 p.a. for married and single servants, respectively. Attractive conditions of service, including free passage to South Africa, are offered. Apply to the above mentioned address for fuller details.

WORKSHOP FOREMAN (FOUNDRY) required by NIGERIAN RAILWAY for one tour of 12-24 months in the first instance. Appointment (a) on temporary terms with salary (including expatriation pay) in scale £807 rising to £1,115 a year; gratuity at the rate of £100/£150 a year; or (b) with prospect of pensionable employment with salary (including expatriation pay) in scale £750 rising to £1,035 a year. Outfit allowance £60. Liberal leave on full salary. Free passages for officer and wife. Assistance towards cost of children's passages or grant up to £150 a year for their maintenance in the United Kingdom. Candidates should have served an apprenticeship preferably with the foundry of a Railway or Loco, builder on both ferrous and non-ferrous castings and have had seven years subsequent experience of heavy foundry work including sand treatment, machine moulding and Fetting plant with at least two

years in charge of other workmen. Prospects of promotion to Senior Workshop Foreman. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/40471/RA.

CROWN AGENTS, ASSISTANT ENGINEER (PERMANENT WAY). Assistant Engineer (Permanent Way) required for their London Office, by the Crown Agents for Oversea Governments and Administrations. Basic salary scale £650 x £25 to £750 x £30 to £960 x £40 to £1,000 plus Extra Duty Allowance of approximately 8 per cent. The £650 minimum is linked to entry at age 25 and is subject to increase at the rate of one increment for each year above that age up to 34. Fully qualified officers at least 27 years old may be eligible for a special increase of £75 within the scale after 2 years' service. Engagement will be on unestablished terms with prospect of appointment to the established staff after 5 years' service and of promotion. Candidates should be Associate Fellows of the Permanent Way Institution and preference will be given to those who have passed the examinations for Associate Membership of the Institution of Civil Engineers or who hold an exempting degree. They must have served in the Permanent Way Department of a Railway or with a firm manufacturing switch and crossing equipment, and must be good draughtsmen. They should have a detailed knowledge of such equipment and be capable of designing station layouts and of making all calculations necessary for any type of turnout. A basic knowledge of railway signalling will also be an advantage. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2A/40381/RA.

ACCOUNTANTS required for NIGERIAN RAILWAY for tour of 12/24 months either (a) with prospect of pensionable employment or on temporary terms with gratuity at rate of £100/£150 a year. Commencing salaries according to experience in scales given below. Outfit allowance up to £60. Free passages for officer and wife. Assistance towards cost of children's passages or grant up to £150 annually for maintenance in U.K. Liberal leave on full salary (a) **PRINCIPAL ACCOUNTANT**, fixed salary (including expatriation pay) £1,625 a year under terms (a) and £1,760 a year under terms (b). Candidates must have a sound knowledge of modern Railway commercial practice with particular experience of general forwarding and delivery procedure, audit and operation of station and traffic documents and accounts. Practical Railway knowledge and a high degree of administrative ability essential. Knowledge of punched card systems and possession of professional qualifications an advantage. (b) **COST ACCOUNTANT**, Salary including expatriation pay, in scale £750 rising to £1,480 a year under terms (a) and £807 rising to £1,631 a year under terms (b). Candidates should be members of one of the recognised bodies of professional accountants (or be preparing to take the final examinations shortly) and have had several years experience of workshop costing and accounting methods. (c) **ACCOUNTANT**, Salary (including expatriation pay) in scale £750 rising to £1,480 a year under terms (a) and £807 rising to £1,631 a year under terms (b). Candidates must have passed the Intermediate Examination of one of the recognised bodies of professional accountants and have a sound knowledge of the accounting and pay procedure connected with Civil Engineering Building Contracts. Works. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote (a) M3B/34681/RA for Principal Accountant, (b) M3B/3211/RA for Cost Accountant and (c) M3B/34679/RA for Accountant. Applicants now serving with British Railways are eligible for secondment under terms (a) and should apply through their Local Officers.

THE High Commissioner for India invites tenders for the supply of 12 Crank Axles (Forged) Coupled Driving to Ex. P. Railway Drawing No. LW94/ALT2 and to IRS Specification R17/54. Forms of tender may be obtained from the Director-General, India Store Department, 32/44, Edgware Road, London, W.2. on or after 8th October, 1954, at a fee of 10s. which is not returnable. If payment is made by cheque, it should please be made payable to "High Commissioner for India." Tenders are to be delivered by 2 p.m. on Friday, 5th November, 1954. Please quote reference No. 160/54/DH/RLY.3.

THE High Commissioner for India invites tenders for the supply of 312 pairs Wheel/Axle assembly, consisting of 2 wheels W770 and solid forged axles W779, to IRS Drawing No. LW94/ALT2 and to IRS Specn. No. 19/53. Forms of tender may be obtained from the Director-General, India Store Department, 32/44, Edgware Road, London, W.2. on or after 8th October, 1954, at a fee of 10s. which is not returnable. If payment is made by cheque, it should please be made payable to "High Commissioner for India." Tenders are to be delivered by 2 p.m. on Friday, 5th November, 1954. Please quote reference No. 215/54/DH/RLY.3.

RAILWAY MATERIAL. Plain Sleepers, Crossing Timbers. We undertake the supply and laying of all classes of siding installations. The Railroad Plant Supplies Co. Ltd., 13 Waterloo Road, Wolverhampton. Telephone No. Wolverhampton 23617.

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